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INFO WORLD

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Worth noting
- Strong E-mail tools
- Faster replication for remote users
- Multiprocessor server support
- Easier to use

Notes news is good news: *Version 4.0 is still slow, but it's a vast improvement over previous versions.* 93

Author, author! *Bravos for Multimedia ToolBook 4.0, the maestro in our multimedia authoring comparison.* 64

THE GRIPE LINE: SITE-LICENSING SQUEEZE

Unless you have big bucks, you have to pay big bucks. Now that **Microsoft's Select 3.0** volume licensing plan has made concurrent licensing a premium product, many **customers are being pushed unwillingly** into a new site-licensing scheme. IS managers are **left with a lose-lose situation** that's a clear win for the Windows manufacturer. **Ed Foster takes a close look at the fine print.** *See page 46.*

Win95 gains extra mobility

■ Microsoft plans to deliver Nashville in piecemeal fashion

By Brooke Crothers and Jason Pontin

NOTEBOOK USERS running Windows 95 can expect Microsoft Corp. to significantly improve life on the road with a series of Windows updates scheduled to start shipping in the second half of this year.

New capabilities on tap for Windows 95 include the ability to hot-swap drives, more advanced power management, improved graphics cards, and advanced serial port technology, said vendors working with Microsoft on these projects.

Most of these mobile computing technologies were originally developed for Nashville, an upgrade of Windows 95 that was scheduled for release in late 1996, sources said.

But Microsoft now plans to release new mobile features, along with other new technologies, in a series of service packs to be distributed on floppy disks and over the Internet through the latter half of this year and into next year, said Brad Silverberg, senior vice president of Microsoft's Personal Systems division.

One of the chief new features will be the ability to hot-swap drives without rebooting the system.

Support for this technology will be provided by notebook vendors,

▷ **WIN95** *page 20*

120 specification

Group tackles I/O woes

By Deborah DeVoe

THE HEADACHES of addressing varying I/O schemes may soon lessen when a large group of companies announces a new ad hoc I/O driver specification next week.

A group of major industry players will unveil on Jan. 29 the I2O specification, software logic for attaching I/O peripherals to a system, sources said. The group will include more than 15 companies, with the steering committee consisting of 3Com Corp., Compaq Computer Corp., Hewlett-Packard Co., Intel Corp., Microsoft Corp., NetFrame Systems Inc., Novell Inc., and Symbios Logic Inc.

The specification will provide

▷ **I/O** *page 20*

ENTERPRISE COMPUTING

Fast evolving switches and hubs are forcing once-powerful routers out onto the network fringe

Switched off

By Luc Hatlestad

The router, long relied on as the workhorse for wide-area networking across the enterprise, is on the way to becoming an endangered species. As network bandwidth demand increases and network managers plan to add Internet and multimedia applications, the router is emerging as a bottleneck.

To resolve this issue, some networking analysts and vendors are now advocating that the router function be moved

▷ *continued in* ENTERPRISE COMPUTING, *page 51*

Windows 95 GUI

IS embraces NT 4.0 beta sight unseen

By Jason Pontin

MICROSOFT CORP. may have sold more than 17 million copies of Windows 95 since last August, but the tide at corporate sites is increasingly turning to Windows NT on the desktop.

In fact, many large sites are making wholesale commitments to NT before even having seen the next major release.

Windows NT Workstation 4.0, which features a new interface borrowed directly from Windows 95, already has commitments from 40 companies to each buy more than 10,000 copies. In addition, 15 Fortune 500 companies have each committed to buying more than 30,000 copies, according to Megan Bliss, Windows NT Workstation product manager.

But it won't be until next week that approximately 120,000 IS managers will get their hands on the first beta release of NT 4.0, said sources close to the company.

▷ **NT** *page 20*

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Network Computers

Oracle shows NC prototype, sets rollout date

By Rob Guth

ORACLE CORP. CEO Larry Ellison last week in Japan showed off the first prototype of a Network Computer (NC) and said he expects 1 million units to ship in the year following the device's September delivery date.

Set to be unveiled in the United States in March, the desktop unit — the first version of what Ellison said will be a multiplicity of NCs that will appear later this year — uses a 50-MHz ARM 7500 processor, has 8MB of memory, supports Ethernet, and comes with a keyboard and PC Card slot. The unit will connect to desktop monitors and TV sets.

The machine will also feature a stripped-down price, which has been its most salient feature.

"The basic NC with 8MB of memory and no hard disk and no floppy disk, with no backup device, is $500," Ellison said.

The first version will ship in late September. One key feature is the PC Card slot into which users can plug flash memory cards that hold downloaded data and applications. This gives users the ability to recreate their workspace on any NC. With the card, users can connect to the network, download the latest applications and files, work off-line, and reconnect later — saving connection time on the network.

The initial machines will run an operating system, NC OS, developed by Oracle and Cambridge, England-based partner Acorn Computer Plc.

A software/hardware reference design under development is independent of both OS and processor. As a result, Oracle expects an unnamed vendor to ship an Intel version of the NC by year's end.

Also by that time, Oracle expects to have a version of the NC powered by a 220-MHz ARM processor.

Ellison said video telephones, set-top boxes, and laptop NCs are also planned. A slate-style laptop will weigh 900 grams and house an 8-inch monochrome LCD and 8MB of RAM. The LCD is not backlit, so the NC will run on AA batteries, Ellison said.

Oracle expects that the largest market for the unit will be home users but that demand will also come from business users looking for an easy means for doing E-mail, word processing, and Internet browsing.

"Corporations can plug in the NC right next to a personal computer," Ellison said.

Oracle is trying to set up distribution deals with telephone companies and Internet providers.

"Companies who provide network services to corporations and homes will give away network computers and charge for them as part of their monthly service charge [as is the case with cellular telephones]," Ellison said. "We think this type of distribution will make network computers common throughout society."

Oracle will not build the hardware and is now trying to finalize agreements with hardware vendors.

Ellison will move on from Japan, where he met with NEC Technologies Inc. and Toshiba Corp., to Korea and Taiwan to meet with Samsung Electronics Co. Ltd., LG Goldstar, Acer Group, and Taiwan Semiconductor Manufacturing Co. Ltd., said Raymond Lane, president of worldwide operations at Oracle.

In the United States, Oracle is talking to Compaq Computer Corp. and Intel, Lane said.

Rob Guth is Tokyo correspondent for the IDG News Service.

SHELDON LAUBE LEAVES NOVELL, JOINS USWEB

AT DEADLINE

Sheldon Laube, Novell Inc.'s recently hired chief technology officer, is leaving the company over a disagreement over a company reorganization, a Novell spokesman confirmed last week. The spokesman said Laube chose to leave after a Jan. 11 reorganization that placed all product development groups under the stewardship of Novell Executive Vice President Steve Markman. The spokesman said Laube would still have been responsible for long-range planning and would not have seen his responsibilities diminish under the reorganization. Laube will become the chief technology officer at USWeb, a Santa Clara, Calif.-based start-up formed by two former Novell officials to develop World Wide Web technology.

APPLE TAKEOVER RUMORS ABOUND

Acquisition rumors continued to swirl around Apple Computer Inc. last week. The company was negotiating with Sun Microsystems Inc., according to published reports. Sun joins IBM and Hewlett-Packard Co. as possible takeover candidates for the beleaguered company. (See "PC leaders sing new tunes," Nov. 13, 1995, page 1.) Apple declined to comment on the reports. The company last week said that it lost $69 million for its first quarter, which ended Dec. 29, 1995, and announced layoffs of 8 percent of its workforce.

SPRY TO RELEASE INTERNET OFFICE 4.1

Spry Inc.'s CompuServe Internet division will ship at ComNet next week Internet Office 4.1, a new version of the company's Windows 3.1 Internet application suite. The suite, which will sell for $399, will include an integrated Telnet, VT, 3270, and 5250 client that will support Visual Basic for Applications scripting. Also included are a WinSock-compliant Network File System (NFS) client, Finger, Ping, and Socks Firewalker, a program that simplifies the use of Internet applications from within LANs protected by a fire wall.

NOVELL CLOSE TO SELLING WORDPERFECT

Novell is expected to announce a deal by the month's end with a buyer for its WordPerfect division, which has been on the block since October. One prospective buyer, Corel Corp., confirmed last week it is among the bidders for the application development company. Other bidders reportedly include IBM and Oracle Corp.

BRIEFLY NOTED: ▶ COMPAQ COMPUTER CORP. last week signed a 10-year licensing deal with Intel Corp. and agreed to use Intel motherboards in its products. ▶ **THE SANTA CRUZ OPERATION INC.** will announce an Internet Server version of its OpenServer OS next week for release later this year. ▶ **FALCON SYSTEMS INC.** today plans to announce FastfilePro, an NFS multiprocessor server that uses 100-MHz Pentium chips and is priced starting at $18,995. ▶ **ORACLE** will this week announce Personal Oracle Lite, a slimmed-down desktop version of the company's database server priced at $195 per user. ▶ **CANON COMPUTER SYSTEMS INC.** will announce next week a line of Pentium desktops and servers. ▶ **SYMANTEC CORP.** and **MCAFEE ASSOCIATES INC.** will release fixes for the Concept Word Macro virus on their BBS sites this week. ▶ **PLATINUM TECHNOLOGY INC.** last week said it will acquire **PRODEA SOFTWARE CORP.**, a maker of on-line analytical processing tools, for approximately $36 million. ▶ **NETSCAPE COMMUNICATIONS CORP.** and **VERIFONE INC.** will this week announce a plan to codevelop gateway software to connect banks to the World Wide Web. ▶ **WAYFARER COMMUNICATIONS INC.** will next week ship QuickerServer and QuickServer SDK for Windows 95 and Windows NT. The packages consist of tools for building internet applications using Java, Visual Basic, and C/C++.

FROM THE NEWS DESK · JAI SINGH

Dr. Bill has a cure for your upgraditis

"I'm tired of upgrading and I'm not going to do it anymore!" If you've had the urge to scream these choice words but were afraid to do so because you feared losing your job or being ridiculed for not keeping up with the Joneses, don't be.

You're cool even if you stick with the "old" stuff, is the message one industry heavyweight is delivering.

"Your trusty 486 with 8 megs of RAM will do just fine," touted the advertising copy in a national newspaper last month. Who could be delivering this public service message? AMD? Intel? Microsoft?

Here's a hint (gleaned from the ad): "So you're staring blankly at your PC, wondering, if I get Windows 95, am I gonna need a brand spanking new computer to go with it ... You don't need a small mainframe to run the Windows 95 operating system. And you won't even need all-new software because it will run the vast majority of PC programs."

This message was delivered by none other than the Redmond giant. Now, you may be wondering, what does Intel have to say about this? After all, one half of the Wintel duopoly has declared the 486 technology passe. It's busy pushing 66-MHz Pentiums.

How do the system vendors feel about Microsoft's missive as they dutifully start peddling the latest and greatest Pentium box?

And what about third-party developers? What's the... take on the "you won't even need all-new software" line in the message? This after they labored hard to get their Win95-compatible wares out on time.

Well, that's for another time. We want to focus on the central point of Microsoft's message: You can kiss your upgraditis ich good-bye.

So, you are wondering, if I can run all my "old" software just fine with my "old" operating system, why do I need to upgrade to Windows 95 in the first place? Hmmm...

Good-bye

This is my last column for *InfoWorld*. I am moving on to cyberspace and will be working for a start-up called c/net. I've truly enjoyed our electronic tete-a-tetes.

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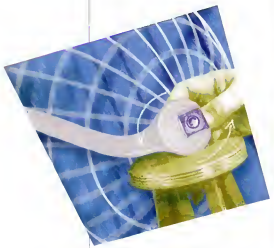

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TI, AST ready notebooks using PCI technology

■ Universal Serial Bus support on tap

By Brooke Crothers

TEXAS INSTRUMENTS Inc. and AST Research Inc. are finalizing 1996 plans to rev up their respective notebook lines using the latest PCI and serial bus technology.

TI is planning a 6000 line of notebooks, code-named Eclipse, that will make use of a smorgasbord of new technologies, including Universal Serial Bus (USB) and 1394 Serial Bus ports, 32-bit CardBus slots, and large LCD screens.

TI, the first top-tier notebook vendor to ship a PCI notebook system, will again rely on internally developed technologies to add 1394 and CardBus support to its notebook lines, said Vaughan Watts, director of the company's mobile computing architecture lab.

TI's semiconductor division is now shipping a PCI-to-CardBus controller and a chip set for linking a 1394 Serial Bus with the PCI bus.

USB ports will provide plug-and-play connection of peripherals, including printers, scanners, and communication devices.

The 1394 Serial Port would allow a direct connection to consumer electronic devices, including digital camcorders. TI systems in this line, due later this year, will also sport 12.1-inch LCDs and may support enhanced Zoom video technology, which provides full-motion video.

AST, for its part, will roll out systems in the coming months that include notebooks equipped with 32-bit CardBus slots and a PCI bus based on Intel Corp.'s Mobile Triton chip set, sources said.

In addition, all AST systems will come equipped with built-in CD-ROM drives by midyear, the source added.

These systems will also sport 12.1-inch 800-by-600 and, later, 1,280-by-768 active matrix LCDs, sources said.

"The 10.4-inch [active matrix] will move to the low end [notebooks], the 11.3 [inch] to the mid-range, and the 12.1 [inch] will be the high end," one source said.

The AST systems will have 64-bit graphics and video subsystems and will eventually move to 128-bit graphics at the high end. AST systems will also feature Zoom video and MPEG support.

For AST, the 75-MHz Pentium chip will replace the DX4/100 as the low-end processor, and the 90-MHz Pentium will disappear, the source added, to be replaced by the 100-MHz Mobile Pentium, due to ship in February.

Intel, meanwhile, will put the finishing touches on its Mobile Triton chip set by delivering a PCI-to-PCI bridge solution in March, said sources. This will allow vendors to bring out docking stations that use PCI technology.

Desktop vendors enter Pentium Pro fray

By Deborah DeVoe

A SECOND WAVE of Pentium Pro desktops is about to hit the market as additional hardware vendors dive in to ship systems using Intel Corp.'s most advanced processor.

AST Research Inc., Compaq Computer Corp., Gateway 2000 Inc., and Unisys Corp. will soon join the ranks of Hewlett-Packard Co., Digital Equipment Corp., and Dell Computer Corp. as suppliers of Pentium Pro systems.

In general, vendors appear to favor using 150- or 200-MHz Pentium Pros in their desktops. Most companies have decided not to use the 180-MHz version of the chip, citing better price and performance in the 150- and 200-MHz offerings.

Meanwhile, Intel is positioning the 166-MHz Pentium Pro as a server chip that will come with 512KB of Level 2 cache.

AST last week said it will begin shipping its Bravo MS-T 6150 this month. The 150-MHz high-end desktop is expected to have a $4,560 street price for a model with a 1.2-gigabyte (GB) hard drive, 16MB of RAM, and 256KB of Level 2 cache.

The company is also planning to offer a 166-MHz Pentium Pro version of its dual-processor Premmia GX workstation later this quarter, officials said.

Compaq, which announced its systems at the time of Intel's November Pentium Pro unveiling, plans to ship 150-MHz ProLinea and Deskpro XL models in February, officials said. The ProLinea 6150e will be Compaq's first system to use an Intel-designed motherboard; the Deskpro XL 6150 will be based on Compaq's motherboard technology, officials added.

The ProLinea 6150e with 16MB of RAM and a 1GB hard drive will cost $3,999. The higher end Deskpro XL will cost $4,999 for a similar configuration. Compaq will offer a

AST WILL JOIN THE LIST *of vendors offering Pentium Pro systems when it ships its 150-MHz Bravo MS-T 6150 high-end system this month.*

$6,499 Deskpro XL model that features Panasonic Communications & Systems Co.'s PD/CD-ROM drive that can read standard CD-ROMs and read and write special PD optical discs. (See related story, page 20.) The system comes with 32MB of RAM and a 2.1GB hard drive.

Any Compaq Deskpro XL system can be upgraded to the Pentium Pro chip, officials said. Processor upgrades will be available by the beginning of the second quarter, though pricing has not been set, they added.

Dell, which is already shipping its 150-MHz model, will ship its Dimension XPS Pro200 in February. The company also announced last week that Pentium Pro systems ordered with at least 32MB of RAM will include ramRight, a memory correction system. OptiPlex systems using the Pentium Pro are due by midyear.

Gateway, meanwhile, is delivering 150- and 200-MHz Pentium Pro desktops, and Unisys is expected to announce a minitower system by month's end.

HP will also announce next week plans for 180- and 200-MHz Pentium Pro Vectras, due to ship in March, officials said.

IBM, Epilogue to bolster network security

By Mark Leon

IBM AND Epilogue Technology Corp. this week will preview network management security software that adheres to a User-based Security (USec) model developed by the now-defunct Simple Network Management Protocol Version 2 (SNMPv2) working group.

Scheduled to debut at ComNet, in Washington, the USec implementation is based on work done by Glen Waters at Northern Bell Research and is less complex than the security specifications originally proposed by the SNMPv2 group.

The SNMPv2 working group recently disbanded as members could not reach an agreement on security issues, said group member Marshall Rose, a principal architect of SNMP.

When the SNMPv2 committee broke apart, another member, Jeff Case of SNMP Research International Inc., in Knoxville, Tenn., pursued an SNMP security strategy called SNMPv2*. USec is a more staged approach than SNMPv2* to the security solution, Rose said. Case plans to show SNMPv2* at NetWorld+Interop, in Las Vegas, in April.

Analysts said the two competing security solutions could mean problems for users.

"The two approaches are fundamentally different," said Jill Huntington-Lee, an analyst with Datapro Inc., in Delran, N.J. "The market can only tolerate one. A battle will just lengthen the time to market. If there is a consensus, we can get the product by the end of the year. If not, the user community will be hurt."

At the show, IBM will unveil two USec-enabled SystemView agents, a common agent for AIX and one for OS/2, expected later this year.

IBM's demonstration system will have an Ethernet connection to a 486 machine running Epilogue's USec SNMP-based network management software. The Capitola, Calif., company will ship USec source code for developers to test later this quarter, said Epilogue president Dave Preston.

USec security agents

- **Origin identity** allows users to identify a message's source by tagging it with a cryptographic signature.
- **Message integrity** tells users if a third party has tampered with a message.
- **Replay protection** keeps parties from intercepting and retransmitting messages.
- **Confidentiality**, which encrypts SNMP traffic, is an optional feature; developers who want to sell it overseas have to exclude it to comply with U.S. restrictions on encryption technology exports.

HP unveils Fast Ethernet products

By Luc Hatlestad

HEWLETT-PACKARD CO. will acquiesce to market demand this week when it rolls out a set of Ethernet and Fast Ethernet products to complement its existing 100VG AnyLAN product line.

Embracing Fast Ethernet represents a change of heart for HP, which has steadfastly backed competing AnyLAN technology.

Despite HP's success with AnyLAN products, analysts said Fast Ethernet gives users a better migration strategy to Asynchronous Transfer Mode (ATM) networks.

"There has been a religious war between 100VG and Ethernet," said Frank Dzubeck, president of Communications Network Architects Inc., in Washington. "100VG is better for video, but once you move to ATM, it makes no difference. It's getting to the point where HP is trying to propagate [100VG] beyond its life expectancy."

HP will kick off its strategy — designed for small offices and remote sites — at next week's ComNet industry trade show in Washington, and the company plans to make weekly announcements through May, said sources who had been briefed on the strategy.

Included in the initiative will be 100VG-AnyLAN switches with 10Base-T and 100Base-T connection capabilities, new 100VG-only switches, 10Base-T hubs, remote access products, infrared connection devices, network management software, partnership announcements, and price cuts on existing products, sources said.

HP will launch the strategy in February when it ships a 100Base-T switch with 100VG and 10Base-T ports, sources said.

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Warranty	3 Years	3 Years	3 Years/2 CRT
Plug & Play	Yes	Yes	No
Low Emissions	Yes	Yes	Yes
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Street Price*	$715	$959	$849

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SyncMaster 17GLi September 12, 1995 — SyncMaster 17GLsi October 1995

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NT 4.0 promises better gateway to Internet

By Nick Wingfield

AS PART OF ITS PLAN to strengthen Windows NT as an Internet server platform, Microsoft Corp. will include in the next version of the operating system facilities for sharing files, printers, and applications over the Internet.

Windows NT 4.0, which enters beta testing in February, will be packaged with a Domain Name Service/Windows Internet Naming Service (DNS/WINS) integration gateway, enabling users to locate resources on NT servers and workstations connected to the Internet.

With the DNS/WINS gateway, once a DNS request comes into an NT 4.0 server connected to the Internet — for example, for micro soft.com — the gateway will dynamically assign an IP address to NT machines on the internal network, enabling access to files on those computers.

The gateway software is expected to facilitate better remote access to NT computers connected to the Internet, analysts said.

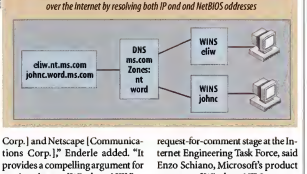
"It allows you to expand your internal network metaphor to the 'net," said Rob Enderle, senior industry analyst at Giga Information Group, in Santa Clara, Calif. "It opens up a whole series of possibilities with regard to deployment of services.

"This has got to scare the bejeezus out of Lotus [Development Corp.] and Netscape [Communications Corp.]," Enderle added. "It provides a compelling argument for staying close to [Windows NT]."

In early December, Microsoft announced plans to merge its Internet Information Server World Wide Web server with Windows NT Server sometime in the first quarter.

Microsoft officials said there are no plans to integrate DNS/WINS with Windows 95. Furthermore, DNS/WINS is an interim solution that will ultimately be replaced by Dynamic DNS, a specification in the request-for-comment stage at the Internet Engineering Task Force, said Enzo Schiano, Microsoft's product manager of Windows NT Server.

"When DNS becomes dynamic, you won't need [DNS/WINS]," Schiano said.



HTML authoring

Microsoft fills out 'net lineup with FrontPage

By Nick Wingfield and Chris Jones

MICROSOFT CORP. last week moved to bolster its position in the Internet development tools market by acquiring Vermeer Technologies Inc., a Cambridge, Mass., maker of technology for creating and managing World Wide Web pages.

For the Redmond, Wash.-based company, the deal nets Vermeer's flagship application, FrontPage, which has been widely praised for combining Hypertext Markup Language (HTML) authoring tools with Web site management features that let users view all files on a Web site, including hyperlinks between pages.

Unlike many HTML editors, FrontPage also comes with programs called WebBots that let users easily add interactive features such as threaded discussions and feedback forms for Web pages.

FrontPage will join the expanding ranks of Microsoft Internet applications, including Internet Assistant for Word, a low-end HTML authoring tool and browser, and Internet Studio, a high-end package with advanced multimedia tools. Microsoft will keep FrontPage's $695 price tag.

Although there will be considerable overlap between these products, analysts say each will appeal to different market segments.

"FrontPage is one step below Internet Studio [formerly Blackbird] and one above Internet Assistant [for Word]," said Bruce Guptill, research director at Gartner Group Inc., in Santa Clara, Calif.

Microsoft said it has no plans to integrate FrontPage into its Office suite, although it will eventually give FrontPage the capability to manage native files for the various Office applications and HTML files.

The Vermeer acquisition represents a departure in one respect for Microsoft, which thus far has focused its Internet strategy on Windows. FrontPage runs on Windows but supports management of Unix and Windows NT Web servers. Microsoft is also committed to delivering a Macintosh version of FrontPage in the second half of 1996.

> Reports say closely held Vermeer fetched about $130 million.

FrontPage also supports HTML extensions from both Microsoft and Netscape Communications Corp. The two companies have been battling over the creation of new HTML extensions, which extend capabilities but could establish proprietary standards. To date, Vermeer has maintained a neutral position.

"Vermeer has been in the middle, supporting both standards, trying to be the Switzerland of the Web," said Neil McManus, executive editor of *Digital Media*, an industry newsletter based in San Francisco.

FileNet buys pieces for automation suite

By Pardhu Vadlamudi

WORKFLOW VENDOR FileNet Corp. last week went on a shopping spree, buying document management, a World Wide Web server, and high-end computer output technology with the aim of creating an integrated office automation suite.

FileNet acquired both Saros Corp., a Bellevue, Wash., maker of document management and workflow software, and International Financial Systems Ltd., the New York-based developer of Greenbar Software Computer Output to Laser Disk (COLD) technology, which is the digital equivalent of microfiche storage of documents.

FileNet Corp.'s finances

1995 financial results

- 1995 year-end revenues of $215.5 million, up 22 percent
- 1995 net income of $14.8 million, including a $5 million charge for merger costs

Recent expenditures

- Saros Corp. purchased for $100 million
- International Financial Systems Ltd. purchased for $10 million
- Watermark Software Inc. purchased for $61 million

The company said last week that it plans to combine its newly acquired technology with its Visual WorkFlo offerings and introduce an integrated suite of applications for workflow, document imaging, document management, and COLD technology. FileNet acquired document-imaging software from Watermark Software Inc. last July.

The company will offer three packages: one for client/server systems, another for Web server-based systems, and a third suite designed specifically for Microsoft Corp.'s BackOffice server.

FileNet will reveal more of its integration plans in March at the Association for Information and Image Management show in Chicago.

Analysts familiar with the document management and workflow marketplace said the series of acquisitions significantly increases FileNet's profile in the market.

"I think [the acquisitions] change the game in the industry," said Bruce Silver, president of Bruce Silver Associates, in Weston, Mass. "It accelerates the convergence of document management and imaging."

The acquisition of the Greenbar COLD technology also gives FileNet an entry to an emerging technology market, one that is expected to hit $3 billion in revenues by 1998, said Mason Grigsby, president of Output Strategies Consulting, in San Francisco.

"They are going to be one of the first vendors integrating both document management and COLD technology," Grigsby said.

(See related story, page 32.)

Novell to link NDS and NetWare Web Server

By Paul Krill

NOVELL INC., in an upgrade of its NetWare Web Server due in late summer, will integrate the product with NetWare Directory Services (NDS), allowing NDS objects to be accessed through a World Wide Web browser.

When accessing a NetWare Web Server site, users will get a HyperText Markup Language document of the directory, listing available resources at the site and hot links to other Home pages, said Mark Griffiths, Novell director of marketing for Internet Commerce. This functionality is part of Novell's plan to make NDS the directory of choice on the Internet, he said.

The upcoming release will also enable Web developers to set up privileges to documents for different users. A Uniform Resource Locator will point to a file in the directory, and a user will be granted access to it, Griffiths said.

Novell's new Web Server will provide more seamless links between the Web and IPX networks, said Frank Dzubeck, president of Communications Network Architects Inc., in Washington.

"What they've done is linked it such that you can pass from one world to the other efficiently," Dzubeck said.

Novell hopes to use NDS as a means of providing electronic commerce over NetWare, Griffiths said.

Other features that may show up in the next release include interfaces to databases on other servers, enabling users to access services on third-party servers; enhanced multiprocessing support for higher performance; and support of proxy, name, and news servers.

Also in late summer, Novell plans to release an IPX-IP gateway that will give IPX desktops access to Web servers. The company may offer special promotions, such as discounts on NetWare 4.1 when purchasing Web Server or bundling Web Server with NetWare or other Novell products, Griffiths said.

In addition, Novell will integrate its GroupWise messaging system with the Internet later this year. (See story, page 41.)

For the record

The Jan. 15 story "Borland to ship Delphi update" (page 33) incorrectly stated the release date for Borland International Inc.'s Delphi 2.0. The product will ship later in the first quarter of this year.

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Lotusphere

Vendors tackle Notes integration

By Jessica Davis

THIRD-PARTY DEVELOPERS will converge at Lotusphere in Orlando, Fla., this week to honor a single application that has grown into an entire industry — Lotus Notes.

The biggest Notes endorsement will come from SAP AG, which will announce plans to work on integrating Notes with SAP's client/server applications, sources said.

Meanwhile, Network Imaging Corp. will announce that Lockheed Martin's IS&T division has integrated its multimedia object management product, I View, with Lotus Notes. Until now, I View has been used only with relational databases.

Other significant Lotusphere announcements include the following:

■ Revelation Technologies Inc., in Stamford, Conn., will unveil Revelation ViP 2.0 for Lotus Notes 4.0, a visual programming tool — formerly owned by Lotus Development Corp. — that now sports native 32-bit support for Windows 95 and Windows NT. The software is compatible with LotusScript 3, the Basic language delivered with Notes 4.0.

Revelation ViP 2.0 gains new functionality by exploiting tools in Windows 95, such as tab controls, list controls, and slider objects. New charting tools, using Chart 2.0, include support for three-dimensional and other complex chart types.

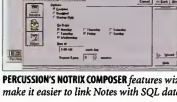
Revelation ViP 2.0 will ship at the end of February and will cost $1,695 per developer seat or $399 for upgrades.

■ Stoneham, Mass.-based Percussion Software Inc. will release a version of Notrix Composer, which links Notes with SQL databases. Version 3.1 improves performance, adds the capability to perform replication, and offers a visual interface. Version 3.1's graphical interface offers wizards to guide the Notes integration with relational databases.

The GUI also provides real-time access to job definition aids such as lists of databases, forms, views, columns, and other information containers. Notrix Composer 3.1 will ship by the end of February for $3,750.

■ Documentum Inc., in Pleasanton, Calif., will announce Documentum Link for Lotus Notes, a tool that lets users access and retrieve documents from Documentum's Docbase document repository. Work-in-process documents reside in the Notes database; finalized documents are kept in the Docbase repository. Documentum Link is expected to ship in April. Pricing will be based on the number of named users.

■ IntelliAgent Control Corp. will show IntelliAgent software pumps that enable bidirectional transfer of data between Lotus Notes and two contact managers, Symantec Corp.'s Act and Elan Software Corp.'s Gold-



PERCUSSION'S NOTRIX COMPOSER *features wizards to make it easier to link Notes with SQL databases.*

Mine. The new IntelliAgents work with the IntelliAgent Control System, which the Dallas-based company sells for $4,995 for server software and five-user licenses. Extra licenses cost $395 per seat.

Pardhu Vadlamudi contributed to this report.

Lotus, IBM to unveil plans to strengthen product ties

By Jessica Davis and Ed Scannell

DURING THE long-awaited formal rollout of Notes 4.0 this week, Lotus Development Corp. will outline a new application development strategy and elaborate on its expanding relationship with parent company IBM.

Notes 4.0 significantly improves the scalability of the Lotus groupware platform, provides a revamped user interface, and embraces World Wide Web technologies.

At Lotusphere, in Orlando, Fla., Lotus will outline plans for a native calendaring and scheduling database that works within Notes 4.0, a component strategy for SmartSuite, and provide details on eApplication Frameworks — building blocks linking industry-specific applications to the Web.

IBM will also outline plans for an integrated Visual Age/LotusScript development environment capable of manipulating Java applets, said Tim Negris, vice president of sales and marketing for IBM's Software Solutions division.

Actual product demonstrations this week, however, will be limited to enabling Notes users to download Java applets from the World Wide Web, sources said.

Lotus' component strategy for the desktop will break SmartSuite into tiny applications that can be used as needed. Lotus will continue to sell the product as a single package but will also offer collections of OLE custom controls that can be used to build custom suite applications that can be distributed in Notes. (See "SmartSuite to come apart," Oct. 23, 1995, page 1.)

Lotus and IBM will also talk about marrying their respective product lines. IBM will discuss integrating its Visual Info imaging environment with Notes and the LN DI imaging system developed with Eastman Kodak Co. for Lotus.

Lotus and IBM will also demonstrate the capability to distribute OLE objects from IBM's DB2 to Lotus' Approach database. The companies plan to eventually meld Approach with the DB2, effectively turning Approach into a run-time version for DB2 applications, said Negris.

Finally, Lotus will announce an AIX version of Notes 4.0 for IBM's RS6000 servers and show a new Enterprise Support Program, which for an annual fee of $165,000 includes support 24 hours per day, seven days per week.

FTP buys Mariner browser

By Yvonne L. Lee

AS PART OF A continuing effort to expand the network services bundled with TCP/IP suites, FTP Software Inc. last week announced an agreement to purchase a World Wide Web browser and to merge with Firefox Communications Inc.

FTP will purchase Network Computing Devices Inc.'s Mariner Intelligent Internet Organizer Business, an application that makes it possible to browse Web pages, read mail and news, and transfer files.

However, unlike a Web browser that transports users to different sites as they click on links or type in Uniform Resource Locators, Mariner moves users around the Internet as they drag and drop items on different icons, said Clay Ryder, analyst with Zona Research, in Redwood City, Calif.

As part of its sale of Mariner, NCD has agreed to license FTP's Network File System (NFS) server and client for Windows NT and Windows 95. NCD plans to use the NFS server in its WinCenter line, as well as in future software. The agreement is expected to be complete by the end of the first quarter.

TCP/IP vendors have been buying applications to provide attractive front ends to their suites in the face of Microsoft Corp.'s offering a free TCP/IP back-end connectivity stack in Windows 95, Windows NT, and Windows for Workgroups, said Stephen Auditore, president of Zona.

Examples include FTP's recent acquisition of HyperDesk Corp. and Attachmate Corp.'s purchase of the Wollongong Group Inc.

The merger with Firefox extends FTP's reach into NetWare LANs due to Firefox's expertise in building IPX/SPX-to-IP bridging software. The companies said they intend to collaborate on groupware, messaging, and collaborative computing applications. Firefox will become a wholly owned subsidiary of FTP.

The merged company will enable those with NetWare servers to connect to the Internet or corporate intranets without installing TCP/IP software on each desktop, Ryder said.

Universal Database

Oracle7 expands data handling repertoire

By Mike Ricciuti

ALTHOUGH THE FIRST unveiling of its Internet terminal box grabbed the spotlight, Oracle Corp. also previewed two additional components of its evolving Universal Database server strategy last week at an Oracle-sponsored trade show in Tokyo.

Universal Database is an umbrella term for Oracle7 and a series of optional components that add data handling capabilities to the server engine (see box).

Last week, the Redwood Shores, Calif.-based company showed for the first time the Advanced Network Option for providing secure network services for building Internet and intranet applications, as well as the ConText Option for cataloging and retrieving large amounts of text data through the database server. Both options will work only with Oracle 7.3, an upgrade of the database server due to ship by summer. No pricing was announced.

Universal Database is intended to expand Oracle's database server to handle a range of applications that use text, video, and other data types, a goal that most of its competitors are also striving to reach.

Some users say that the additional Oracle options contribute to the database's flexibility but may result in a more loosely connected marketing strategy than one for a well-integrated product.

"For the most part, it's a market-

Oracle's Universal Database components

Product	Available
OLAP Option	Now
64-bit Option	Now
Distributed Option	Now
Parallel Server Option	Now
ConText Option	By summer
Advanced Network Option	By summer
Spatial Option	By summer
Video Server Option	By February

SOURCE: ORACLE CORP.

ing strategy. Some options are literally part of the server," said Hugo Toledo, senior consultant with Saraswati Systems Corp., a database consultancy based in Chicago. "You can see in the install scripts how they have left [software] stubs to connect to the database server. And in other cases, they are strictly add-ons."

Oracle executives admit that previously introduced components of the Universal Database, such as the OLAP Option, a repackaged version of IRI Software Inc.'s Express server acquired by Oracle last fall, are not yet well integrated.

But Mark Jarvis, Oracle's senior director of product marketing, said future releases will address integration issues.

Informix Software Inc. has a comparable strategy called the Informix Universal Server, which will be unveiled next month and is scheduled to ship by year's end. (See "Informix speeds its entry onto Internet," Dec. 25, 1995/Jan. 1, page 8.)

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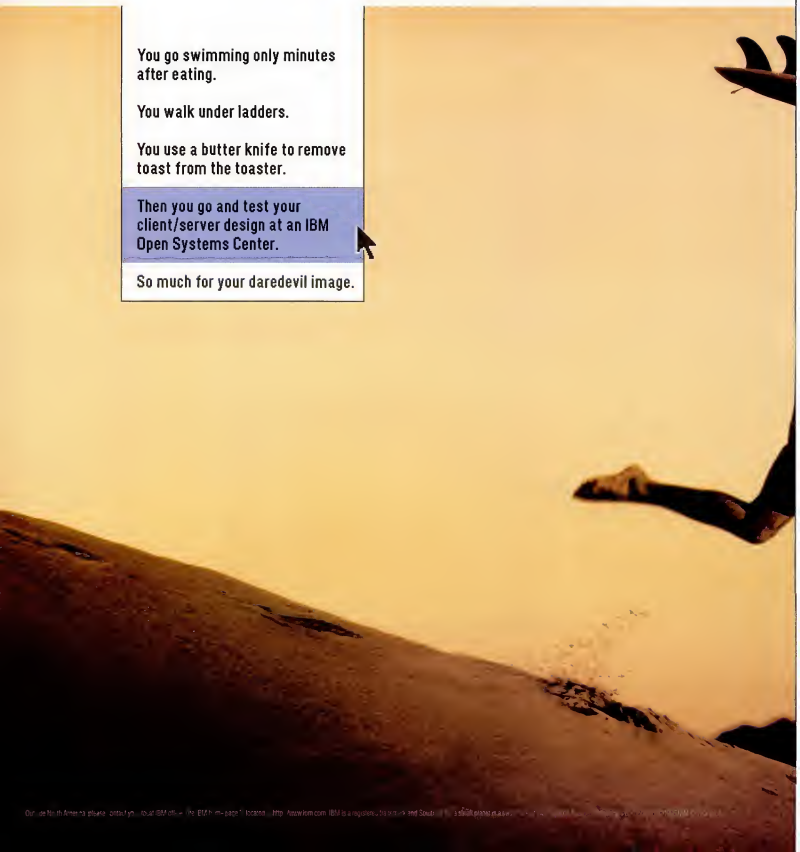
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Web spurs cross-platform tool development

By Martin LaMonica

THREE DEVELOPMENT TOOL vendors last week answered the call for cross-platform tools, a call that is growing ever louder as the use of World Wide Web servers promotes the deployment of mixed operating system environments.

■ Visual Edge Software Ltd., in St. Laurent, Quebec, last week announced the release of its Cross-Platform Toolset (CPT) 2.0. The new version lets developers use third-party visual controls and maintain the native look and feel of Motif Unix and Windows, said Brian Fromme, president of Fromme Custom Solutions Inc., a Fort Collins, Colo., IS consultant. CPT is priced at $2,500 per developer. Its development and target platforms include 16- and 32-bit Windows, HP-UX, Solaris, and the SunOS. AIX, SGI-RX, and Digital Unix versions are set to ship in the second quarter.

■ SunSoft Inc., in Mountain View, Calif., last week delivered an add-on called ProWorks Visual XP to its Visual WorkShop development toolkit. With the add-on, Visual WorkShop can generate graphical interfaces for C++ applications that run on Motif Unix or Windows clients. The Solaris for Intel version costs $395; the Solaris for Sparc-based workstations version costs $495. Visual WorkShop costs $2,295 for Intel and $2,445 for Sparc.

■ Macintosh C++ compiler vendor Metrowerks Inc., in Montreal, also added the capability to compile Windows NT and Windows 95 applications from a single set of source code. CodeWarrior Gold 8 costs $399, including Microsoft Foundation Classes. Version 4.0. A Java version is slated for May.

Most large and midsize IS organizations typically host mixed OS environments, but analysts say this trend is being broadened by the increased use of Web servers that can be accessed by any client. Developers also welcome cross-platform tools because they increase the size of the market for any single application.

"If you're developing for the Internet, you can choose three or four platforms and write to all of them with a single tool, and you've got huge market coverage," said Evan Quinn, an analyst at International Data Corp., in Framingham, Mass.

MICROSOFT, OTHERS JOIN TCP/IP LAB

THE ORGANIZATION that tests the interoperability of Windows TCP/IP applications received a vote of confidence last week when Microsoft Corp., Intel Corp., Cisco Systems Inc., and Quarterdeck Corp. signed on.

Stardust WinSock Labs tests the components of TCP/IP applications that will run on Windows or be connected to systems running Windows. The lab was founded last year when vendors of these various parts banded together to correct problems that occurred when interpreting the WinSock 1.1 API, which allows Windows applications to run on TCP/IP networks.

The lab will begin testing in late March the interoperability of the forthcoming WinSock 2.0 API, which goes beyond attempting to create interoperable Windows TCP/IP applications to working with DECnet, Novell's IPX and SPX, and the Open Systems Interconnection protocols. WinSock 2.0 will also include Internet security and support for adding multimedia applications.

Intel and Microsoft are expected to introduce a software developer's kit for WinSock 2.0 in February.

Analysts said Microsoft's motivation in joining the multivendor alliance may stem from a desire to promote internally developed protocols, such as the WinPCT security protocol, as industry standards. If WinPCT is available for vendors to experiment with and test with existing products, vendors might be more amenable to using it, said Rick Villars, director of network technologies at International Data Corp., in Framingham, Mass.

— Yvonne L. Lee

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Compaq to offer Scanner Keyboard for PCs

By Deborah DeVoe

UNIQUE SCANNING and storage devices are slated for upcoming Presario consumer desktops from Compaq Computer Corp., said sources familiar with the vendor's plans.

Compaq is quietly demonstrating a Scanner Keyboard, a keyboard that doubles as a scanner to allow users to scan in documents at the top edge of the keyboard.

Compaq officials would not comment on planned availability or pricing of the keyboard. However, the device is expected to be introduced later this month, sources said. It will be sold as a stand-alone peripheral and is also expected to be incorporated into Compaq's Presario line, they added.

Corporate users may find the Scanner Keyboard technology attractive, analysts said.

"The ability to load documents from a desktop is certainly interesting," said Martin Reynolds, an analyst at Dataquest Inc., in San Jose, Calif. Pricing will have to fall near the $200 range for it to be accepted, he added.

Compaq will also announce this month integration of Panasonic Communications & Systems Co.'s PD/CD-ROM drive into the Presario 9200 tower model, sources said. The drive can read CD-ROMs as well as read and write to PD optical discs, making it a storage alternative to the floppy drive.

Company officials acknowledged plans to offer an integrated PD/CD drive in an upcoming high-end Pentium Pro–based Deskpro XL but declined to offer specifics.

Softimage 3D comes to NT

■ Makes OS high-end 3-D platform

By Chris Jones

MICROSOFT CORP. last week made its long-awaited first foray into the high-end 3-D animation market with the release of Softimage 3D, a professional film and multimedia production tool, for Windows NT.

Softimage 3D is a popular application on Unix boxes from Silicon Graphics Inc. (SGI). Having acquired Montreal-based Softimage Inc. in 1994, Microsoft has now brought its GUI onto Windows NT. Some beta testers of the NT version said it may have even better performance than the SGI version.

SOFTIMAGE 3D *gives Windows NT users a professional film and multimedia production tool.*

"The interface is the same as on our SGI system, and the image rendering seems to be even faster on the NT platform," said Paul Grimshaw, computer graphics operations manager for Industrial Light and Magic, in San Rafael, Calif. "Beyond that, it's been remarkably stable so far."

Softimage is used in high-end animation techniques such as inverse kinematics, flexible platform modeling, and motion-capture technology and is widely used in Hollywood production studios, although Microsoft says it is also useful for less advanced graphics production.

Softimage 3D for Windows NT is priced at $7,995. A turnkey system, including a workstation, a monitor, and Softimage 3D, is available through February for $14,995.

NT

Continued from page 1

"I'm very excited about 4.0," said Briscoe Stephens, advanced scientific coordinator for science and engineering at NASA's Marshall Space Flight Center, in Huntsville, Ala. "From some standpoints, it's one of the most important things Microsoft has ever done. It could really let us live up to the promise of distributed computing."

A key element of that promise is the first implementation of the Network OLE distributed object architecture, which Microsoft has now decided to add to NT 4.0 in the second beta cycle, sources briefed by Microsoft officials said. (See "Network OLE misses beta," Jan. 8, page 1.)

Despite Microsoft's early success with NT 4.0, most users are expected to withhold judgment until they evaluate three critical factors: Microsoft must maintain NT's much-vaunted stability; Microsoft must maintain a footprint of 16MB; and Network OLE must deliver stable, fast distributed-object performance.

Microsoft is still working to meet these criteria before the final release this summer.

For example, the development team decided to move the Graphics Device Interface (GDI) and User functions — two portions of conventional memory accessed by every application — out of the operating system and into NT 4.0's microkernel to make NT smaller and faster, Bliss confirmed last week.

Until now, these functions have been kept out of the microkernel so that it would be immune from buggy device drivers or applications. Bliss said the NT team has compensated for the change by assigning the functions isolated address spaces.

"We wouldn't mess around with NT's stability," Bliss said.

But major design changes this late in the game always make some users nervous.

"It's too early to tell for certain, but I don't like the sound of it," said the IS manager of an insurance company in Chicago. "I would prefer [GDI and User] to be completely isolated."

Regardless of what Microsoft does at this point, it appears IS managers have decided to give NT 4.0 a chance.

"NT is becoming the corporate standard," said Sam Wilcox, regional network manager at General Instrument Corp., a manufacturer of scientific instruments in Carrollton, Texas. Windows 95 has not been well received here, and they've just taken away my last OS/2 Server. I suppose I had better see the thing and get used to it."

Microsoft booms in second quarter*

- Revenue of $2.2 billion, up 48 percent from same quarter last year
- Net income of $575 million, up 54 percent
- Backoffice suite revenue up 100 percent from same quarter last year
- Cash reserves exceed $6 billion

*Ended Dec. 31, 1995

I/O

Continued from page 1

manufacturers with a standard method for connecting I/O peripherals, eliminating the current need to write individual drivers for each system, sources said.

Variations in driver implementations are among the most frequent causes of system failures.

"Manufacturers have been going with different implementations of logic, so folks who have to attach something from the outside are confronted with a lot of variation," said one source. "[This group is] doing an intelligent thing to get rid of a lot of variations, bringing some order to an area of mild chaos."

The group has been working on the specification for about a year, one source said, and products adhering to the specification are expected to be available by midyear.

Though unwilling to comment on specifics, Rich Archuleta, research and development manager of HP's Network Server division, acknowledged the need for further development of I/O technology.

"There are problems that exist in taking x86 computers up in performance to take advantage of applications with high I/O bandwidth needs," Archuleta said. "A lot of functions require the vendor to write into the OS at a low level.

"If you take the function and embed it into the OS, it makes it easier. [Moving] intelligence for I/O away from the host processor is going to require software changes," Archuleta added. "We're trying to see if it makes sense to work together."

The specification is consistent with current network protocols and is likely to be expanded to address other goals, sources said.

"The first goal is to off-load some of the I/O processing tasks from the CPU," said another source. "A second is to provide a more consistent interface between I/O cards and the CPU — the driver issue. And the last goal is to provide a mechanism for peer-to-peer communications between I/O devices."

The announcement is not expected to address clustering, sources said, though many I/O companies involved are also working with Microsoft on a clustering API for Windows NT. (See "Microsoft flexes muscles," Oct. 16, 1995, page 1.)

"We are not working with anyone on interconnect standards," Archuleta said. "We want to solve more difficult problems first and then let that drive the interconnect."

Win95

Continued from page 1

such as Compaq Computer Corp., in new Multi Bay architectures that are capable of recognizing different types of hard disk drives, CD-ROM drives, floppy disk drives, or batteries, sources said.

Currently, companies such as Texas Instruments Inc., Hewlett-Packard Co., and Digital Equipment Corp. offer notebooks with hot-docking docking stations, but the ability to hot-swap storage devices that are built in to the notebook itself is not yet available.

Upcoming Windows Power Management APIs will also give more flexibility in managing the power consumption of specific devices, said Jim Kelsey, a technologist at SystemSoft Corp., a system BIOS provider in Natick, Mass.

Users said these updates will deliver on the original promise of Windows 95 as a mobile platform.

"Microsoft is trying to take some of the aggravations out of managing mobile computing," said Brian Peabody, director of end-user computing at Prime Consultancy Group Inc., a bank operations consulting company in Norcross, Ga. "Some of this stuff — the power management, the hot-plugging, the serial port stuff — has real value."

Notebook vendors will also take advantage of future support in Windows for the Universal Serial Bus to allow users to hot-swap printers, scanners, communication equipment, and a host of other devices.

Some vendors are contemplating using 1394 serial bus ports to allow direct connection to digital camcorders and other video devices.

Video subsystems for notebooks running Windows 95 will also get a shot in the arm in 1996, said Sunder Velmuri, director of marketing for S3 Inc., a graphic chip supplier based in Santa Clara, Calif.

Velmuri said notebooks running the next generation of 64-bit S3 graphics cards under Windows 95 will be capable of viewing two wholly separate images. For example, a user could be working on a spreadsheet running on the notebook LCD while cruising the World Wide Web on a separate image running on a monitor hooked up to the notebook.

Other technologies that will likely find their way into offerings from top-tier notebook vendors include

- new batteries based on the Smart Battery specification promoted by Intel Corp. and Duracell International Inc., which allows for longer lasting batteries; and
- advanced 12.1-inch High Refresh Ratio dual-scan LCDs that can handle video yet cost half of what active matrix screens do.

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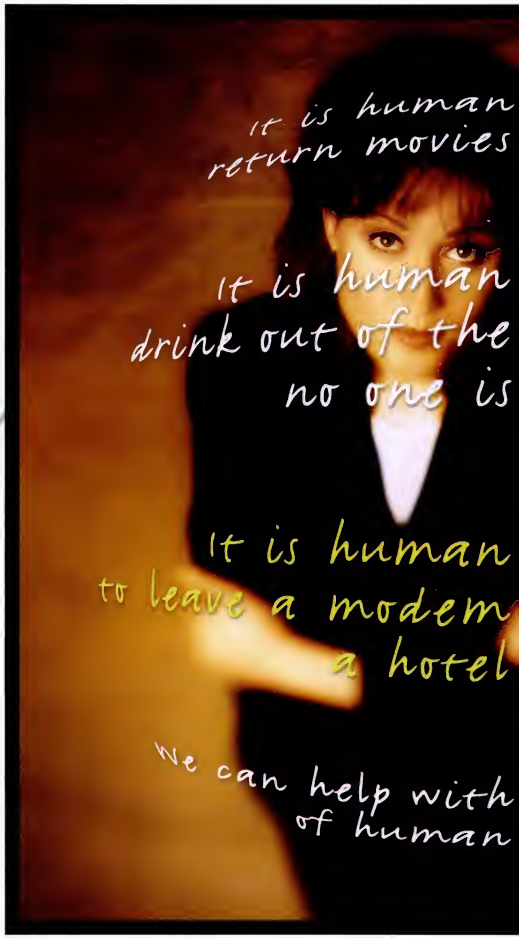
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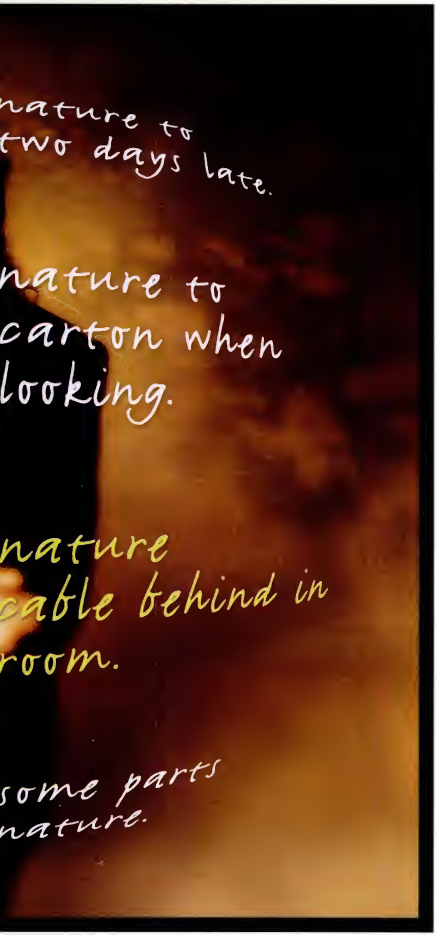

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Icro Focus Inc.is shipping Correlate, a connectivity tool to help users access Micro Focus Cobol data files using Open Data base Connectivity-compliant de sktop reporting tools, such as Crystal Reports, Excel, Impromptu, Power-Builder, and Visual Basic, without data migration or modification. A stand-alone version of Correlate costs $500; a client/server version that uses TCP/IP network protocols for connecting Windows workstations and Unix servers, due later this quarter, will cost $300 per user. (415) 856-4161.

ANNOUNCED

DELL COMPUTER CORP. announced this month its SelectCare International PC support service for business-people traveling and working abroad. The first phase will provide Latitude XPi and XP note book users with toll-free access to support specialists 24 hours a day, seven days a week for a $149 annual fee. The program is available now to U.S. professionals traveling in 11 European countries and will later be extended to other regions. (800) 289-3355.

PINNACLE MICRO INC. announced an upgraded Recordable CD (RCD) system. Due Feb. 1, RCD 5040 includes a quad-speed CD reader and a double-speed CD recorder. It comes with software for creating CDs and archives. The internal PC version will cost $995; the external Macintosh or PC version will cost $1,295. (800) 553-7070.

SOFTWARE PUBLISHING CORP. announced last week ASAP WordPower, Version 1.95, a new release of its presentation graphics product. ASAP WordPower, a 32-bit application for Windows 95 and NT, takes files from word processors and graphics programs and turns them into presentation graphics, such as pyramids or pie charts. ASAP WordPower will ship Feb. 15 for $99; upgrades will cost $30. (800) 336-8360.

IBM to bundle services, network systems

By Ed Scannell

IBM PLANS TO TAKE a different tack than its competitors when offering network computing devices by bundling a wide array of software and communications services running on IBM servers.

Although IBM is still working out the details, some of which may be disclosed at the Demo 96 conference in Indian Wells, Calif., later this month, the company is expected to offer a broad range of packaged services around its InterPersonal Computers (IPCs).

Company officials say these services will allow IBM to offer a more cost-effective network computing model than those being proposed by Oracle Corp. and Sun Microsystems Inc.

"Our competitors haven't talked about the cost of connecting these $500 devices to databases and other corporate resources, which could be an extra $3,000 or $4,000," said an IBM representative. "We'll focus on what the total cost of computing is, and how you build a box that reduces that, by letting our device provide more control over data."

NEWS ANALYSIS

Some users say IBM should be capable of offering a variety of attractive services, but add that the company must not suggest a move back to mainframe architecture.

"This idea could be a step back into the past. I just threw away a lot of dumb terminals around here," said Frank Petersmark, head of technical services for Ameriture & Co., an insurance company in Southfield, Mich.

In addition, IBM has to contend with Oracle's head start in this emerging area. Oracle will soon display a variety of devices, including a terminal, video phone, set-top box, and digital assistants, that run on the same operating system. (See "'Net devices near reality," Jan. 15, page 1.)

Oracle will begin its push in the first half of this year and expects its terminal to be priced at about $500. However, some observers believe a terminal configured for typical corporate applications will cost closer to $1,000.

Company officials say IBM's first low-cost systems will look more like diskless workstations using a low-end Pentium chip and will have a base price of about $1,000. The company also hopes to deliver portable versions in the near future.

The desktop units are expected to have a monitor, keyboard, and, in some cases, enough memory to handle large server software downloads.

They may also have a CD-ROM drive, but no floppy disk drive and only a small hard drive. IBM has shipped prototype units to a handful of corporate accounts.

The fact that the cost of the IBM basic desktop unit is about twice that of devices proposed by Oracle does not seem to be a concern.

"In tomorrow's world, the emphasis will be on what services you can provide or what communications abilities you integrate; generally, how you piece things together," said one IBM insider.

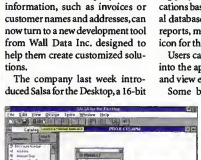
Windows database development tool

Salsa for the Desktop creates drag-and-drop databases

By Pardhu Vadlamudi

BUSINESS USERS who need applications to track company-related information, such as invoices or customer names and addresses, can now turn to a new development tool from Wall Data Inc. designed to help them create customized solutions.

The company last week introduced Salsa for the Desktop, a 16-bit Windows database development tool.



INSTEAD OF BUILDING *database tables, Salsa for the Desktop lets users drag and drop database templates.*

Salsa for the Desktop uses Wall Data's Semantic Object Modeling to let users create outlines of their applications with drag-and-drop templates instead of having to design database tables.

The program reads a template, such as a list of resumes or marketing projections, then builds applications based on a built-in relational database that includes all forms, reports, menus, and an application icon for the desktop.

Users can enter new information into the application as well as sort and view existing data.

Some beta testers are already using the Salsa system to design applications that will retire existing mainframe systems.

"We have used this as a replacement for a time-reporting system running on a mainframe, and once we have received the final product, we plan to put it into production," said beta tester Roger Peterson, IS director for Kawasaki Motors Corp. U.S.A., in Irvine, Calif.

"It lets us generates all types of applications," Peterson added.

Salsa for the Desktop is expected to ship by the end of the first quarter priced at $499.

Wall Data is located in Seattle. The company can be reached at (800) 987-2572.

Sales of Win95 apps sluggish

■ OS' coattails fail to carry other vendors

By Chris Jones

MANY DESKTOP SOFTWARE vendors expected the release of Windows 95 to whip up strong demand for 32-bit applications. But while sales of the operating system are strong, 32-bit applications sales have not met the optimistic projections of several companies.

One of the most high-profile examples is Corel Corp., which was counting on Windows 95 to drive sales of its 32-bit Draw 6.0. Fourth-quarter sales came in $9 million short of the projected $73 million, due in part to slow sales of the 32-bit upgrade, according to Corel officials. After four months, only 10 percent of the Draw user base has upgraded to Version 6.0. Normally, Corel officials said, about 30 percent of Draw users should have upgraded by now.

MARKET ANALYSIS

Although sales of the operating system itself have been strong, some vendors, such as Corel, blame slower than expected application sales on the OS' delayed release schedule and a comparatively slow corporate adoption rate.

Analysts say that many corporate users are waiting to evaluate the next major release of Windows NT, which goes into beta testing next week and will feature the same interface as Windows 95.

"People were going home and running Windows 95 with their 16-bit apps. And many corporate users are waiting for NT," said Jesse Berst, executive editor of *Windows Watcher*, a newsletter in Redmond, Wash. Berst added that many vendors have delivered 32-bit applications that don't necessarily exploit all the new features of the OS.

Other software vendors that relied on sales of 32-bit applications include Adobe Systems Inc., Macromedia Inc., Symantec Corp., and Microsoft Corp. Most companies don't break out numbers that reflect sales of 32-bit programs, but several vendors conceded their disappointment.

■ Macromedia is selling new 32-bit Windows applications, including Freehand and Extreme 3D.

"We would like to see the new Windows products going a lot faster," said Joe Dunn, Macromedia vice president of product management.

■ Symantec stock dropped 33 percent, primarily due to poor sales of its Win95 utilities, after quarterly year-end earnings were reported.

■ Adobe recently released 32-bit versions of PageMaker and Photoshop, but fourth-quarter product revenues grew only 5 percent over the previous year.

Microsoft would not release sales figures for Office 95, but unofficial reports suggest that the 32-bit suite is one of the few Win95 applications meeting sales expectations.

Sharp to add 100-, 133-MHz Mobile Pentium processors to notebook lines

By Brooke Crothers

SHARP ELECTRONICS CORP. will expand its mobile offerings in the coming months with additions to its PC-3000 and PC-9000 lines of notebooks that are slated to include Intel Corp.'s as-yet-unannounced 100-MHz and 133-MHz Mobile Pentium processors, sources said. (See "Faster Mobile Pentiums due for notebooks," Jan. 15, page 1.)

The high-end 9000 series will use Mobile Pentium processors, including Intel's upcoming 133-MHz processor. The midrange to low-end 3000 notebooks are expected to use midrange Pentium processors, including the upcoming 100-MHz Mobile Pentium.

The high-end notebooks, the PC-9010, PC-9040, and PC-9070, will include

- active matrix LCDs that boast sizes of 11.3 inches and 12.1 inches and support a maximum resolution of 800 by 600;
- a removable, light-weight quad-speed CD-ROM drive;
- an integrated 28.8Kbps voice and fax/modem with digital simultaneous voice and data capability;
- a 4Mbps infrared port;
- hard disk drives ranging from 772MB to 1 gigabyte; and
- built-in sound.

The 3000 series notebooks, weighing about 5.5 pounds, will be slimmer and lighter than the 9000 series. Standard features will include 11.3-inch LCDs that support an 800-by-600 resolution, built-in sound, a built-in pointing device, and an infrared port.

The 3000 series will be priced between $2,399 and $3,000; pricing for the new high-end 9000 models is not yet available.

The notebooks will ship in February, except for the PC-9070, which will ship in March.

Sharp, in Mahwah, N.J., can be reached at (800) 237-4277.

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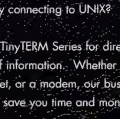

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Axil launches UltraSparc systems

By Deborah DeVoe

THE ULTIMA 1 FAMILY of workstations, to be unveiled this week by Axil Computer Inc., will be the company's first systems to take advantage of the UltraSparc's 64-bit architecture.

Santa Clara, Calif.-based Axil's U140 and U170 workstations offer improved performance over current hyperSparc and SuperSparc systems, the company said. Based on the 143-MHz and 167-MHz UltraSparc chips, respectively, the systems are designed for compute-intensive applications, company officials said.

Due to ship next month, the systems are 100 percent Sparc compliant and ship with Solaris 2.5. They use the SBus architecture, come with three slots, and have on-board 16-bit audio.

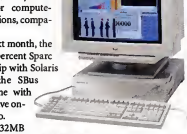
A U140 with 32MB of RAM, an 8-bit TGX graphics card, a 1-gigabyte (GB) hard drive, and a 17-inch color monitor costs $15,230. A U170 with 64MB of RAM, a 2GB hard drive, and a 21-inch monitor costs $20,735.

The systems are also available with the Solaris 2.5 Application Server Suite; a U170 Server with the 167-MHz UltraSparc, 64MB of RAM, and a 1GB hard drive costs $18,235.

Axil will also announce this week a multiprocessor workstation, the S/420. Based on the S/420 Server, the workstation is aimed at customers working with large data sets. The system provides as much as 1GB of RAM to speed performance. The workstation also features two SBus I/O channels for increased bandwidth.

The S/420 Workstation supports four hyperSparc or two SuperSparc 11 processors that range from 75 to 150 MHz. The S/420 systems are shipping now. A configuration with two 75-MHz SuperSparcs, 512MB of RAM, a 2GB hard drive, an 8-bit graphics card, and a 21-inch monitor costs $54,180.

Axil can be reached at (800) 472-2945.



AXIL'S ULTIMA 1 *systems will feature the UltraSparc's 64-bit architecture.*

InfoWorld Street Prices

Desktop systems

100-MHz Pentium system[1]	Hard drive	Low	High	Average	Change from December
AST Bravo MS P/100 1200W	1.2GB[2]	$2,649	$2,950	$2,820	-3%
Compaq ProLinea 5100	1.1GB	$2,765	$3,018	$2,873	None
Dell Dimension XPS P100c	1GB	Direct price		$2,379	-4%
Gateway 2000 Professional P5-100	1GB	Direct price		$2,339	-1%
HP Vectra VL3 5/100	840MB	$2,539	$2,738	$2,618	-12%
IBM PC 350	840MB	$2,598	$2,874	$2,742	N/A[3]
Zeos Pantera Pentium-100	850MB	Direct price		$2,295	None
Clones/compatibles[4]	1.2GB	$1,649	$2,409	$2,070	-2%
PowerPC system[5]					
Apple Power Macintosh 7500/100	1GB	$2,649	$3,000	$2,809	None
Power Computing Power 100	1GB	Direct price		$2,528	None

InfoWorld Street Prices are based on telephone surveys of resellers and on print advertising in computer publications and regional newspapers. Price information was collected between Jan. 7 and Jan. 13.

1. Pentium systems include DOS, Windows, keyboard, mouse, 16MB of RAM, and a 15-inch color monitor. The Dell, Gateway, and Zeos systems include a quad-speed CD-ROM drive.
2. Gigabyte.
3. Model not included in December pricing survey.
4. Clones and compatibles are systems with the same features as those listed by name, but they are not as widely available.
5. PowerPC systems include a 100-MHz PowerPC 601 microprocessor, 16MB of RAM, System 7.5, a mouse, and a quad-speed CD-ROM drive but do not include a monitor. The Power 100 system includes a keyboard; the Power Mac does not.

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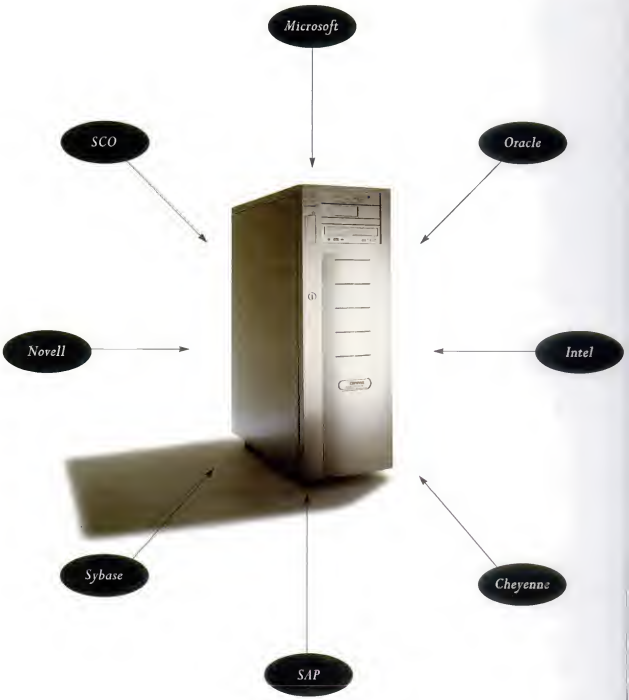

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COMPAQ

Has It Changed Your Life Yet?

SoftBlox beefs up OLE support for SmartPad

■ Eases Windows application linking

By Martin LaMonica

SOFTBLOX INC. LAST WEEK announced an upgrade to its SmartPad development tool for creating automated links between Windows applications that improves the software's OLE support.

SmartPad, aimed at both end-users and developers, helps users automate the passing of data between Windows applications, the company said. Through a scripting language and the tool's visual, menu-driven environment, users can embed buttons in Windows applications, creating links to other applications.

Version 3.5, a 16-bit version due to ship next month, adds support for OLE Automation and the ability to add new menu commands, such as "pass address from Act to Excel," to an application's existing menus. With the upgrade, users can also create macros by recording keystrokes.

Cedar Sinai Health Systems Corp., in Los Angeles, is using SmartPad to automate log-ons to a variety of client/server and host-based systems.

Cedar Sinai has appended its core corporate Visual Basic application with icons that automate the jumps to different host machines. Users can access these machines through Windows terminal emulation software.

"There is a certain amount of screen navigation to get through, but the real problem is that we have so many different terminals for connecting to different host systems and PCs that it's really hard to get 3,000 nurses to learn every time we deploy a new system," said Fred Aabedi, manager of distributed and client/server applications at Cedar Sinai.

SmartPad also endorses a component-based approach to software development because it is an effective means of appending core applications with a subset of the functions of other applications, said Eric Brown, an analyst at Forrester Research Inc., in Cambridge, Mass.

SmartPad comes in an $89 desktop version aimed at end-users.

SmartPad Pro, which includes the scripting language, is priced at $495.

A 32-bit version for Windows NT is due to ship late in the first quarter, according to the company.

SoftBlox, in Atlanta, can be reached at (404) 892-0202.

Next forges ahead with Mach-based OS

By Jason Pontin

NEXT SOFTWARE INC. clarified its operating system plans last week after a series of analyst reports published earlier this month said Next was abandoning the OS market for the development tools market.

In fact, Next intends to continue selling a stand-alone OS based on the Mach microkernel — a variant of Unix — but renamed the OS from NextStep to OpenStep, a name previously used for its cross-platform development environment.

OpenStep 4.0 for Mach will include NextStep 3.3's user interface and applications and will run all NextStep applications.

"Think of OpenStep 4.0 for Mach as being the next logical step for NextStep 3.3," said Charly Kleissner, director of OpenStep Software.

But CEO Steve Jobs has said Next will focus its development efforts on the OpenStep integrated development environment, which runs on top of Solaris and HP-UX, as well as on the Mach microkernel and an upcoming version for Windows NT.

Such statements led some analysts to think that Next was dropping its stand-alone OS business altogether. (See "Next mothballs OS, backs OpenStep," Jan. 8, page 8.)

"Next is exiting the OS business and becoming a supplier of object-oriented application tools," wrote Phillip Johnson in an International Data Corp. study earlier this month.

Many NextStep users were relieved to hear they would still have an upgrade path.

"As long as it has a future, we're very happy with it," said Greg Galvin, a systems administrator at Committ Computer Systems, in Mississauga, Ontario.

OPENSTEP 4.0, *shown here, will borrow the interface previously used for NextStep 3.3.*

Samsung ships color LCD

SAMSUNG ELECTRONICS America Inc. is shipping a 12.1-inch active matrix color LCD and is offering samples of a 14.2-inch LCD that can be used as an alternative to desktop CRT monitors.

Samsung is the first major non-Japanese LCD manufacturer to ship active matrix LCDs in volume.

The 12.1-inch active-matrix display for the notebook market supports 260,000 colors and an 800-by-600 resolution. Samsung is planning to increase the resolution support ed by its 12.1-inch displays to 1,024 by 768 by the second quarter, a company official said.

The stand-alone, desktop 14.2-inch active matrix LCD — roughly equivalent to a 17-inch CRT monitor in the size of its viewing area — will initially be priced three or four times higher than the average 17-inch CRT, sources said. However, the company expects prices will quickly drop, those sources added.

Samsung is also demonstrating a 22-inch active matrix LCD that is still in the early prototype stage.

In related news, Sharp Electronics Corp. has begun to ship 12.1-inch active-matrix displays for its notebook PCs.

Samsung, in San Jose, Calif., can be reached at (408) 954-7000.

— Brooke Crothers

WINDOW MANAGER · BRIAN LIVINGSTON

More tips on using Win95's right mouse button with the Send To function

LAST WEEK, I DESCRIBED one of the best new features of Windows 95: the new powers of the right mouse button. (See "Use your new right mouse button in Win95; explore the Send To function," Jan. 15, page 33.) Specifically, I explained some tricks to using the Send To menu item that appears when you right-click almost any document in the Windows Explorer.

If you missed that column, the idea is that clicking Send To works exactly like dragging a document's icon from an Explorer window and dropping it on a destination. The destination can be an application, folder, printer, the Recycle Bin, and so on. The advantage of Send To is that you don't need to make the destination visible before dropping the document there. You can right-click a document, then immediately send it to WordPad, a \\Network\Public directory, the root of your A: drive, and so on.

You can add almost any application, folder, printer, and so on to your Send To list. To do this, turn on Show All Files in the View, Options window of the Explorer. Then right-drag the desired object into your C:\Windows\SendTo folder, and click Create Shortcut Here. (I explained a slicker way in the Jan. 15 issue. For information on back issues, see Reader resources, page 90.)

You've probably heard the hype about how cool it is to print a document by dropping its file name onto a printer icon on the Desktop. But who can ever find anything on the Desktop under all those windows?

It's a lot easier to right-click a document, then click Print on the right-button menu (called a *context* menu). And if you have access to two or more printers, whether they are attached to your PC or on a network, you can Send To any of your printers. This is a lot faster than changing your current printer manually every time you want to print a document to one or the other.

One way to get a printer onto your Send To list is to right-drag its icon from the Control Panel's Printers window to the C:\Windows\SendTo folder.

You can even have the same printer show up twice on the Send To menu with different settings — for instance, draft vs. presentation quality. To do this, double-click the Add New Printer icon in the Printers window, then select a printer model you already have installed. When Windows asks if you want to "replace" or "keep" the existing driver, reply "keep" (unless you really do possess an updated driver).

After you finish installing this "new" printer driver, you should have a Copy 2 icon in your Printers window.

Right-click this icon, click Properties, and configure this copy of your printer driver any way you like. Then right-drag it into the SendTo folder to create a shortcut to it. Your new, alternate printer settings will immediately appear on your Send To menu. The next time you right-click a document in the Explorer.

Other things that are great to have in your Send To list are the Desktop, the Start Menu, and the StartUp folder. To get these in the list, right-drag the subfolders named \Desktop, \Start Menu, and \Start Menu\Programs\StartUp from your C:\Windows folder to the SendTo folder. When you find a file that you want on your Desktop, Start Menu, or StartUp group, right-click the file, then click Send To, the Desktop (or wherever).

There are some caveats. Remember that when you drag a file to a folder in the Explorer, the file is *moved* if the folder is on the same drive, but it is *copied* if the folder is on a different drive. Send To works the same way with files sent to folders. Exception: Executable files that you Send To the Desktop or any part of the Start Menu are not moved. Instead, a shortcut is created (which is actually what you want).

Another thing: Parameters (such as */P*) are ignored in a Send To command line. I'll show you a fun way around this next week.

One more note: In a recent column, I described a method of changing the value of MenuShowDelay, which controls the lag time before Windows displays submenus of the Start menu. (See "Win95 start menu tips: How to make submenus stick," Dec. 25, 1995/Jan. 1, page 25.) Due to a typesetting error, the variable MenuShowDelay was hyphenated. The hyphen should not be typed as part of the variable name.

Brian Livingston is the coauthor of the new Windows 95 Secrets *and author of three other* Windows *books (IDG Books). Send tips to brian_livingston@infoworld.com or fax: (206) 282-1248.*

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PIPELINE

SHIPPING

Micro Focus Inc. is shipping Micro Focus Cobol Workbench 4.0, for Windows, Windows NT, Windows 95, and OS/2, a development environment that supports both mainframe and object-oriented Cobol and IBM's CICS transaction systems. Version 4.0 costs $2,500 per developer and an additional $1,250 for the CICS option. (415) 856-4161.

The Crescent Division of PROGRESS SOFTWARE CORP. has released EnQuiry, Release 2.0, a Visual Basic 4.0 add-on for building database forms and queries with less coding, for $299. (617) 280-3000.

QUINTUS CORP., which early this month released the HelpQ system for internal help desks, last week released WebQ. WebQ can be implemented for either external customer support or internal help desks. Using a Web browser, users can access from their desktops a server running WebQ. WebQ is available for Sun Microsystems Inc. servers running Solaris 2.4. Users can access WebQ, which is priced at $20,000, from any Web browser. (800) 337-8941.

ANNOUNCED

PYRAMID TECHNOLOGY CORP. announced this month services to convert mainframe and Unix applications to Pyramid's Unix OS DC/OSx and its Reliant line of open systems. Available immediately, Smart Transitions will also provide assistance with re-engineering operational processes such as backups, updates, and disaster recovery. Pyramid's parent company, Siemens-Nixdorf Informationssysteme AG, will provide the same service in Europe. Service pricing ranges from $10,000 to $750,000, officials said. (408) 428-9000.

MAGIC SOFTWARE ENTERPRISES INC. has signed a deal with Btrieve Technologies Inc. to bundle Btrieve's database engines with Magic 6 development tools. (714) 250-1718.

Object database race is on

■ Vendors take different strategies to follow Web-driven trend

By Mike Ricciuti

THE BIG DATABASE MAKERS agree that adding support for object data types to their core relational database servers is a top priority for 1996. But vendors are split over the best way to implement that support to handle the escalating multimedia requirements associated with World Wide Web-based applications.

During the past year, all the major database players have pledged to add to their database servers the capability to store and retrieve object data. The additional support will result in a new generation of databases that can store traditional tabular information, as well as multimedia data and objects created with C++ and Smalltalk-based multimedia requirements of Web applications could easily overpower such hybrid databases.

NEWS ANALYSIS

"The Web has really thrown a development tools. The new databases will also provide developers with the data type support to build Web-based applications.

Most vendors have stopped short of full object database implementations such as those sold by Objectivity Inc., Object Design Inc., and other object database companies. Instead, they are opting for hybrid designs that bolt limited object support onto existing relational engines.

But some analysts warn that the curve ball at the vendors," says Stan Dolberg, an analyst at Forrester Research Inc., in Cambridge, Mass.

Some database vendors estimate that hybrids can handle roughly 90 percent of the object applications developed by IS, with the remaining 10 percent best left to specialized object databases. But Dolberg says this estimate neglects to account for Web applications.

"The relational guys are talking about handling the 90 to 95 percent of object situations we understand today," Dolberg says. "The Web will push the need for more robust object support, and object databases [from pure object database vendors] will become an integral part of Web technology."

Admittedly, most hybrid designs were conceived before the Web's popularity soared in the past six months. Relational database vendors are now debating anew how best to implement object support to handle Web development.

One vendor, Computer Associates International Inc., has canceled plans for a hybrid database in favor of two separate products: the com-

▷ OBJECTS *page 32*

Database vendors' object plans

Vendor	Product	Type	Available
Oracle Corp.	Oracle 8.0	object-relational hybrid	late 1996
Sybase Inc.	Sybase SQL Server	object-relational hybrid	mid-1997
Informix Software Inc.	Universal Server	object-relational hybrid	late 1996
Microsoft Corp.	OLE DB	Object File System in Windows NT	early 1997
Computer Associates International Inc.	no name yet	object database	mid-1996

SOURCE: VENDORS

OS/2 network operating system

Beta users like Warp Server, doubt its future

By Paul Krill

USERS TESTING BETA VERSIONS of IBM's OS/2 Warp Server network operating system say they are impressed with the product but have doubts about whether IBM can make any headway in the server arena in the face of stiff competition from Windows NT, NetWare, and Unix.

TECH UPDATE

The biggest edge OS/2 Warp Server provides is ease of installation and a good toolset, users say.

"I've run both betas that they have out, and truthfully, I was really impressed," says LAN administrator Jason Jeremias of the Deloitte & Touche accounting firm, in Anchorage, Alaska. "The installation is a complete overhaul of every version of OS/2 I've ever run."

Warp Server runs about twice as fast as Windows NT on a comparable machine, Jeremias adds.

Meanwhile, Abdul Nabi, a systems administrator at a Northern California bank, says utilities for setting up user accounts are easier to use than the NWAdmin utility in NetWare 4.x. Another user applauds the inclusion of SystemView management software.

"I could look at everybody's desktop, and run the server [console], from my workstation," says Robert Sanders, director of technical services at the software consultancy Rabbit Enterprises, in Peekskill, N.Y.

Sanders, who has used the first beta of the product, does say it took more time to ramp up than he expected because he experienced complications with remote access and modem pooling features. The product also lacked published manuals, containing only on-line documentation, which would take a lot of time to print, he says.

Despite what appears to be a solid product, users say IBM will be hard-pressed to stop Microsoft Corp. from grabbing market share.

"They're, as usual, a year late with a great idea and follow-through, but I don't think the day has com-

Highlights of OS/2 Warp Server

- LAN Distance Remote support for remote nodes
- Distributed Console Access Facility remote systems management
- Advanced printing support and support for bidirectional printers
- Dynamic Host Configuration Protocol support for distributing IP addresses

pletely gone to NT," says Keith Grey, an independent developer in Orlando, Fla.

Due by March, Warp Server merges OS/2 and LAN Server 4.0 as a single product and features a

▷ WARP *page 32*

UNISYS KICKS OFF PENTIUM SYSTEM PRICE-SLASHING

By Deborah DeVoe

THE EXPECTED TIDAL WAVE of price cuts on 75-to-133-MHz Pentium systems will hit shore this week when Unisys Corp. announces reductions as large as 22 percent.

The cuts stem from Intel Corp.'s reducing prices of 150- and 166-MHz Pentium chips earlier this month. (See "Next-generation Pentium PCs ship," Jan. 8, page 8.)

"[With the price cuts,] we may see a little bit of deconfiguration, with systems moving down from 16MB to 8MB of RAM," said Martin Reynolds, an analyst at Dataquest Inc., in San Jose, Calif. "Last quarter, the 133-MHz Pentium was the top-end machine, and a significant number shipped with 16MB. Now the high end is the 166-MHz that will ship with 16MB, while the 133 goes back to 8MB."

San Jose-based Unisys will lower the prices of notebook, desktop, and server models, as well as the cost of RAM and IDE and SCSI disk drives. The price reductions will be effective Jan. 22, company officials said.

Notebook reductions will range from 5 percent to 7 percent for 75- and 90-MHz PW2 Travel Partner Pros. The price of a 90-MHz model with a passive matrix screen, 8MB of RAM, and a 500MB removable hard disk will drop to $3,403.

Desktop and minitower cuts will range between 6 percent and 12 percent for 75-to-133-MHz Pentiums. A 133-MHz CWP 6-Slot Desktop with a 1-gigabyte (GB) hard drive, 16MB of RAM, and a CD-ROM drive will drop about 11 percent, from $4,160 to $3,695.

Servers will get the largest price cuts, as large as 22 percent. Prices for full-tower SSE models, with support for two 100- or 133-MHz processors, will drop between 10 percent and 15 percent; prices for full-tower, quad-processor 90- and 100-MHz SME models will be reduced between 20 percent and 22 percent.

Unisys' fault-resilient SFE server will see about a 16 percent reduction; a model with one 100-MHz Pentium, a 2GB hard disk, 64MB of RAM, a redundant array of independent disks subsystem, and a CD-ROM drive will drop from $15,769 to $13,283.

Unisys is at (800) 874-8647.

Visual WorkFlo

FileNet links workflow to accounting apps

By Pardhu Vadlamudi

WORKFLOW VENDOR FileNet Corp. is reaching out toward the client/server accounting market this week by unveiling a tool designed to integrate existing accounting systems with FileNet's Visual WorkFlo software.

Visual WorkFlo Payables helps automate paper-intensive accounts payable systems by linking accounting applications from PeopleSoft Inc., Oracle Corp., SAP AG, and others to workflow and document imaging capabilities.

For example, with Visual WorkFlo Payables users could add customized menus for tasks such as document scanning and indexing, data entry and indexing, and invoice processing.

Visual WorkFlo's own workflow engine — linked to SQL databases such as Oracle7 and Sybase SQL Server — can also be customized to route invoices or other documents through the accounts payable department. Visual WorkFlo also lets users define work processes and take necessary actions to complete a defined business task.

"Visual WorkFlo Payables reduces and eliminates the paper, and having the workflow [feature] is a big benefit," said beta tester Chris Peters, an MIS consultant for Weirton Steel, a steel manufacturer in Weirton, W.Va.

Users with custom accounting applications developed in Visual Basic can use Visual WorkFlo Payables to integrate existing clients with the Visual WorkFlo engine.

Visual WorkFlo Payables, due by the end of the first quarter, will be priced at $4,000 for a four-user system.

It runs on Windows 3.1 on the desktop and HP-UX, AIX, and Solaris servers. Pricing for Visual WorkFlo, sold separately, starts at $1,000 per user.

FileNet, in Costa Mesa, Calif., can be reached at (714) 966-3400.

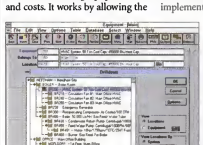
Maximo adds global inventory management

■ Improves equipment tracking tool

By Pardhu Vadlamudi

MANUFACTURERS CAN now track equipment through its life cycle, regardless of its location in the world, using an upgrade of the Maximo maintenance system released last week by Project Software & Development Inc. (PSDI).

PSDI's Maximo 3.0 features new global inventory management and an Asset Modeling function designed to give manufacturers more control for tracking equipment use and costs. It works by allowing the user to create a multidimensional view from any location to analyze the potential effect of making a change to one component or piece of equipment, a level of detail not available in previous releases of the software.



MAXIMO 3.0 *creates a view of equipment data that users can drill through to assess changes.*

For example, a user could analyze the relative failure rate of equipment in different locations.

"In the past, Maximo did fixed facility maintenance very well and mobile plant maintenance poorly, but this release has closed the gap," said Todd Fedoruk, IS manager for Tucson, Ariz.-based Asarco, which is involved in the mining, smelting, and refining of nonferrous metals such as copper. "This is not our first rodeo with a maintenance package [like Maximo], but it's actually our third and our most successful implementation."

The Maximo system includes 12 modules that run on Oracle7 or other SQL databases, including modules for work order management, planning and scheduling, purchasing, spare parts inventory management, and preventative maintenance.

The latest version of Maximo also provides enhanced integration with client/server financial systems via a new API for tying the system to applications for tracking purchases, invoices, and expense reports.

Maximo 3.0, expected to ship in the first quarter, is priced at $40,000 for a five-user system. It runs on Windows 3.1 or Windows NT on the desktop and Unix servers.

PSDI, in Cambridge, Mass., can be reached at (617) 661-1444.

Objects

Continued from page 31

pany's existing Openingres relational database server and a plain object database modeled on Fujitsu Ltd.'s ODB II object database.

"The Web is definitely making it more complicated to develop object support," says Yogesh Gupta, senior vice president for product strategy at CA, in Islandia, N.Y.

Most other vendors still maintain that a hybrid approach is preferable to developing and maintaining a separate object database.

"We have been struggling with this for a while, and honestly, customers don't want another database engine [in addition to their relational database]," says Jnan Dash, vice president of database server technology at Oracle Corp., in Redwood Shores, Calif.

Although Dash says Oracle's upcoming Oracle 8.0 database will add object support, beneath the surface Oracle 8.0 will still be a relational database.

Oracle will give a sneak preview of its Oracle 8.0 database later this month when it ships Personal Oracle Lite, a new lightweight database that supports both relational and object data types. (See "Oracle Lite to hit the road," Dec. 25, 1995/Jan. 1, page 1.)

Informix Software Inc. and Sybase Inc. also plan to implement hybrid servers similar to Oracle 8.0. Microsoft Corp., in contrast, is planning to support object data types via the Object File System, due to ship with the Cairo release of its Windows NT operating system, due early next year. Microsoft will then provide a single API — OLE DB — to provide access to all data types, the company says.

Bridge between Microsoft, OMG distributed objects on hold

By Martin LaMonica

THE OBJECT Management Group (OMG) has delayed an effort to create a standardized bridge between competing distributed object models from OMG and Microsoft Corp. until more details are available on Microsoft's strategy, OMG officials said last week.

The two parties are attempting to link the Component Object Model (COM), the network underpinnings of Microsoft's upcoming Network OLE architecture, to the OMG's existing Common Object Request Broker Architecture (CORBA) to share objects created under either scheme across platforms.

OMG officials said they are waiting for a clarification from Microsoft on the technical details of COM, and the delay will push back delivery of the specification by three months, roughly to the end of this year.

Although Microsoft is an OMG member, tensions have arisen between Microsoft and other OMG members during the COM/CORBA standards process because Network OLE and CORBA offer opposing approaches to distributed object technology, some observers said.

Meanwhile, a separate effort within the OMG to link the current non-networked version of OLE to CORBA is progressing. The effort is expected to produce an OMG standard by this spring as planned, OMG officials said.

Object request brokers from several vendors, including Expersoft Corp., Iona Technologies Ltd., and Digital Equipment Corp., can exchange data between OLE 2.0-based desktop software and CORBA network applications through proprietary interfaces. The OMG effort is intended to provide a standardized implementation.

Warp

Continued from page 31

variety of utilities, such as remote node support, remote systems management, and Dynamic Host Configuration Protocol support for maintenance of IP addresses. IBM has not yet announced the product's pricing.

IBM's LAN Server holds 15 percent of the worldwide server market, according to International Data Corp. But NT has doubled its market share from 7.5 percent to 15 percent in the past two years; NetWare has seen its market share drop from 45 percent to 42 percent.

Although OS/2 Warp Server is expected to be IBM's strongest OS to date, some users say IBM still needs to work on segregation.

Josh Airall, a systems analyst for Cincinnati Bell Information Systems Inc., says Warp Server was able to automatically locate drivers for printers but still lacks Network File System (NFS) functionality for file transfers between Warp Server and Unix environments.

"Warp Server has everything but the kitchen sink," Airall says. "The only thing it doesn't have is the NFS piece."

QMS updates CrownImage

QMS INC. HAS FORMED an Image Management Solutions (IMS) unit and upgraded its imaging applications suite.

IMS will focus on delivering solutions for custom publishing, digital libraries, on-demand publishing, and document management. Typical solutions will include the CrownImage application suite, a Pentium-class server, a scanner, a CD recorder, and at least one image-enabled printer.

Pricing will range between $30,000 and $45,000, depending on the hardware bundled with QMS applications.

The CrownImage 1.1 suite includes the CrownImage Arranger for assembling, arranging, and distributing documents; the CrownImage Browser, which lets users quickly identify documents using thumbnail views; the CrownImage Copier for printing; and the CrownImage On Demand utility for printing documents without opening the application in which they were created.

The upgraded Arranger utility now includes optical character recognition and cropping, erase, and draw tools.

Now shipping, CrownImage 1.1 is priced at $7,500 for a server license and 10 client licenses. The suite runs on Windows 95 and Windows NT.

QMS, based in Mobile, Ala., can be reached at (800) 523-2696.

— Deborah De Voe

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HELP DESK · BRETT GLASS

Poor OS design can cause problems with drive letters

We recently purchased an NEC Technologies inc. MultiSpin 2Xc seven-disc CD-ROM changer.

Upon installation, the driver software creates seven drive letters and seven icons — one for each letter.

The problem is that we have more than 100 CD-ROMS, and many of them will only run from the drive letter on which they were installed. Every time we use a CD-ROM, we have to insert it in the same slot. Is there any way to overcome this problem?

Robert W. Hendricks

This problem is due to a basic deficiency of most current computer operating systems for PC-compatibles, including DOS, Windows, Windows NT, and OS/2. Instead of naming the disks (as the Macintosh does) or allowing them to be mounted at known, named places within the file system (as in Unix), these operating systems assign single-character letters to the physical drives. This causes problems, because many CD-ROM applications — particularly Windows applications — insist on finding the CD-ROM in the drive where it was when the application was installed. And if you try to multitask two applications that *both* want their disks in the same slot, all heck can break loose.

Most CD-ROM networking software solves this problem by letting you map any drive letter to any networked CD-ROM on demand; you simply set up a batch file to perform the mapping before the program is run. (You can sometimes map CD-ROMs on a session-by-session basis, so that two multitasked applications can simultaneously use the same drive letter for different CD-ROMs.)

But users who run applications from local CD-ROM changers (often because the programs run faster or are not licensed for network use) will have a more difficult time — as will users who are not networked. Unfortunately, Microsoft has not maintained compatibility between the mapping programs originally supplied with DOS — SUBST, ASSIGN, and JOIN — and CD-ROMs or Windows.

There's no perfect solution in the latter case, but I can suggest two possible workarounds. First, favor application software that can "find itself" on any CD-ROM drive on the system. Second, try a utility such as Stac Electronics Inc.'s CD-QuickShare. (See "CD-QuickShare puts CD on every desktop," Sept. 4, 1995, page 98.) Besides storing compressed CD-ROM information on your hard drive, this program will let you remap CD-ROM letters at will.

Several years back, there was a liquid called Tweek that people put on boards plugged into a computer motherboard. Have you ever heard of this stuff?

Former *InfoWorld* columnist and science fiction writer Jerry Pournelle used to swear by this stuff, which, according to the manufacturer, bridges small gaps between electrical contacts but does not conduct electricity over greater distances. The active ingredient, Stabilant-22, is made by D.W. Electrochemicals Ltd.

Tweek is a solution of this chemical marketed by a company called Sumiko. It can often be found at audiophile stereo stores. I haven't used these products and so cannot vouch for their effectiveness — especially when adjacent contacts are very close together or voltages above 5 volts are present. For more information, read the explanation in the FAQ for the newsgroup sci.electronics. It can be found at http://www.paranoia.com/~filipg/HTML/FAQ/BODY/F_Chemistry.html on the World Wide Web.

D.W. Electrochemicals, in Richmond Hill, Ontario, can be reached at (416) 889-1522.

Brett Glass' Help Desk answers business computing questions. Readers can leave queries by calling (800) 227-8365, ext. 202 or sending a message to CampuServe 72267,3673.

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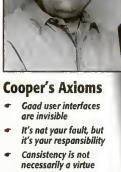
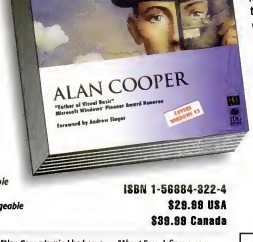


About Face: The Essentials of User Interface Design

By Alan Cooper

Alan Cooper, the "Father of Visual Basic," is one of the most respected software designers of our time.



He's also one of the most outspoken critics of how the software industry goes about building the interface between products and people.

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- *Consistency is not necessarily a virtue*
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- *Purchase the right software, then buy the computer that runs it*
- *Imagine users as very intelligent but very busy*
- *Hide the ejector seat levers*
- *Make everything reversible*
- *Users would rather be successful than knowledgeable*
- *Show, don't tell*

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—*David Carlick,* Senior EVP, Poppe-Tyson Advertising

"Alan Cooper's mind harbors a deep, compelling model of software interaction, which he presents clearly and applies systematically to real-world design problems in *About Face*. This book is fast-paced, irreverent, and no-nonsense. I would recommend it to any software development executive or designer."

—*John Chisholm,* Columnist, *UNIX Review*

"*About Face* defines a new interface design vocabulary that speaks to programmers in their own terms. We have come a long way from the time when there were just modal (bad) and modeless (good) interfaces, and this book reflects that progress."

—*Charles Simonyi,* Chief Architect, Microsoft Corp

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ACQUISITIONS

Cabletron Systems Inc. announced it has completed its acquisition of the Enterprise Networks Switching Group of Standard Microsystems Corp. The deal is valued at nearly $76 million. Cabletron: (603) 332-9400; SMC: (516) 435-6340.

Expanding from mainframe connectivity into distributed systems management, INTERLINK COMPUTER SCIENCES INC. has acquired NEW ERA SYSTEMS SERVICES LTD. Interlink makes software for MVS mainframe customers who want to use TCP/IP as the primary networking transport protocol rather than proprietary IBM protocols such as Systems Network Architecture. New Era's Harbor is a mainframe-based, integrated suite of backup archival and restore programs, as well as application, data, and software distribution programs. The suite supports MVS, Unix, Windows NT, and NetWare. (510) 657-9800.

ANNOUNCED

TIVOLI SYSTEMS INC. has announced software to help users manage SAP AG's R3 application suite in large distributed environments. The Tivoli Application Management Specification (AMS) module for R3 will integrate SAP's management software with the Tivoli Management Environment. (See "Tool vendor trio tackles SAP environments," Dec. 25, 1995/Jan. 1, page 6.) The AMS module for R3 will be available within 90 days. (512) 794-9070.

CISCO SYSTEMS INC. last week announced that users of its 7010 and 7000 routers can upgrade from the stand-alone router and switch processors to the integrated route/switch processor (RSP) found in Cisco's 7500 router series. The ASIC-powered RSP enhances support for Virtual LANs, queuing, high-speed interfaces, encryption, and data compression. Prices for the upgrade will range between $10,000 and $14,000. (408) 526-4000.

HOTSEAT

Banyan CEO David Mahoney claims his company has the only pure directory

Banyan's brawn

BANYAN SYSTEMS INC. is a company in transition. After experiencing two consecutive losing quarters, staff reductions, and public perceptions that its core network operating system (NOS), Vines, was set for obsolescence, Banyan is now focusing on strengthening Vines, expanding networking services to Windows NT, and providing products for the Internet. Chairman and CEO David C. Mahoney talked about Banyan's direction with *InfoWorld*'s Senior Writer Paul Krill.

Banyan has had to fend off a lot of speculation that the company will discontinue its NOS and move its installed base over to Windows NT. What is the official word on this issue?

Our intent always has been to continue to enhance and add new features to keep Vines current. Most recently, there was Vines 6.0, and we will continue to have additional revisions of that product.

We believe that Vines is the best delivery platform in the industry today for integrated messaging and directory services — as well as file and print sharing — making it a very strong platform on which customers can build enterprise networks.

Is there still a place for a file and print NOS when you have Microsoft Corp. accentuating application servers rather than file and print services?

I think both are needed in the market. Clearly one of the things we believe will happen is that more networks will start to be built with what we have called a global directory service. And a global directory service will allow you to easily access various types of objects in the networks — objects being users, printers, files, or applications. Whether you define that need within the context of a NOS or simply just an operating system is probably what's changing.

How will this be applied at Banyan?

Customers want to be able to plug different server platforms into their network for specialized functions: database, applications, management, whatever. We believe that Unix and NT are very logical platforms for performing these kinds of dedicated functions.

So basically our strategy is to make sure that our customers have the flexibility of plugging any platforms that they need into the network.

Banyan has had two consecutive unprofitable quarters and recently laid off some of its workforce. What caused this to happen?

We have seen a slowing in our growth over the last two quarters due to a number of factors. It's due to a combination of market confusion, it's due to a subtle shift in the underlying distribution structure in the industry, and it's due to continued slowness in the international area.

From a financial point of view, we have plenty of cash, with over $30 million. What we're doing within the company is really structuring the business for the market we see in the future. And that is partly due to the enterprise market dynamic itself, but also it's due to the phenomenon of the Internet, or what I

▷ MAHONEY *page 40*

Network management

HP integrates tools

By Mark Leon

IN A MOVE that will bring systems and network management closer together and leverage the World Wide Web as a medium for network reporting, Hewlett-Packard Co. has enhanced its line of OpenView management software.

HP's NetMetrix Internetwork Response software will be integrated with its PerfView application. NetMetrix monitors network traffic information such as Remote Monitoring (RMon) data; PerfView measures systems and application and database parameters such as processor response time and transaction rates.

By integrating these two environments, HP is giving users a glimpse of the functionality it expects to deliver in its integrated Tornado network management platform, which has been delayed but is due out later this year.

"I think the NetMetrix and PerfView divisions within HP have decided to provide some application integration on their own, since Tornado has still not delivered at the enterprise level," said Brian Burba, an analyst at International Data Corp., in Framingham, Mass.

NetMetrix agents are configured and managed by the NetMetrix Internetwork Response Manager. MeasureWare agents report to the PerfView Analyzer. The integration effort is primarily between the agents, but new versions of the NetMetrix Response Manager and the PerfView Analyzer will be required to support it.

NETMETRIX WEB REPORTER *distributes performance reports over the World Wide Web.*

The agent integration will allow users to correlate and view network and systems data in a single PerfView graphical display. The information will be stored in a new PerfView proprietary database for use by capacity planning and forecasting tools.

▷ NETMETRIX *page 40*

Palindrome backs up NT

■ Adds two options to core package

By Mark Leon

PALINDROME CORP. is adding new storage and management options to the Windows NT version of its backup software.

Storage Manager 4.0 Windows NT Edition adds archiving and Hierarchical Storage Management to Backup Director for NT, which was introduced last November. Visual Storage Administrator (Vista) 1.1 Enterprise Edition makes an NT console available for the backup management software.

The new version of Storage Manager integrates file backup, archiving, and migration on NT. It has full support for the NT registry. Agents for Windows 95, Windows 3.1, and NetWare servers are included. The NetWare agent features full support for NetWare Directory Services.

NT support is critical for users.

"Vista gives me one console to manage multiple servers," said Dan Strohl, director of IS at JSP International, in Malvern, Penn. "I have the NetWare version, but it's my understanding that Palindrome plans to make Vista cross-platform."

Vista 1.1 will not be cross-platform. Mixed environments will need two consoles to manage backup on NetWare and NT. A future release will manage both environments from a single console, said officials at Palindrome.

Storage Manager 4.0, available now, costs $1,995 for a single server and $3,995 for a multiserver license. Vista 1.1 is due in February. A version with NT and NetWare consoles and support for five servers will cost $1,995.

Palindrome, in Naperville, Ill., can be reached at (800) 288-4912.

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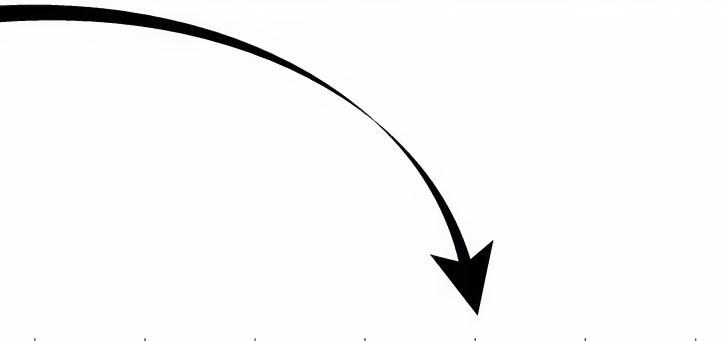

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UB sets the pace with Fast Ethernet products

By Luc Hatlestad

UB NETWORKS INC. has launched a line of Fast Ethernet products designed for enterprise networks that require 100Mbps throughput.

The products are shipping now and include the GeoStax/FE 100-Base-T stackable hub, the GeoStax/FE Micro 100Base-T hub, upgraded versions of the GeoRim/E Ethernet switch with a 100Base-T uplink, 100Base-T adapters, and NetDirector for Workgroups network management software.

Analysts said the lineup gives UB a full set of Fast Ethernet wares.

"Most vendors come out with features like remote monitoring [RMon] and UTP [unshielded twisted pair] connections six months after releasing a product," said Eric Hindin, an analyst at Yankee Group Inc., in Boston. "UB caters to a high-end corporate market that wants to buy everything at once, so UB builds products with all the functionality a user will need."

The UB line features support for 100Base-TX and 100Base-T4 cabling, enabling users of category 3, 4, and 5 UTP wiring to take advantage of Fast Ethernet technology.

The GeoStax/FE hub has 12 ports, is stackable up to five units, and has dual-segment backplanes to maximize bandwidth. It is available in 100Base-TX and -T4 versions and features fault-tolerant power supplies, RMon management, and intrusion protection. It costs $3,995 for the managed version and $2,995 for the unmanaged model. An 8-port version of the hub costs $1,795.

UB Networks Inc.'s Fast Ethernet product line

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Product	Price
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managed	$3,995
unmanaged	$2,995
GeoStax/FE Micro 8-port hub	$1,795
GeoRim/E 10/100 switch with W/100Base-T uplink	$5,995 $7,690
Fast Ethernet adapters	
PCI	$164
EISA	$299
NetDirector for Workgroups	$2,499

The GeoRim/E switch is designed for workgroups and small backbones. GeoRim/E has 12 10Base-T ports, a modular 100Base-T uplink, and an optional redundant power supply. It is priced at $5,995 for the basic version and $7,690 for the model with a 100Base-T uplink.

The 100Base-T adapters are designed for EISA- and PCI-based systems. The EISA adapter costs $299; the PCI version costs $164.

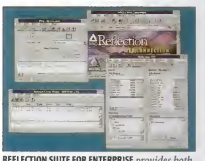
NetDirector for Workgroups is designed for UB Networks' Ethernet, Token Ring, and Fast Ethernet hubs. It is based on Hewlett-Packard Co.'s OpenView and Windows and enables multivendor configuration and fault management for a cost of $2,499.

UB Networks, in Santa Clara, Calif., is at (800) 777-4526.

WRQ targets SNA, TCP/IP environments

By Yvonne L. Lee

WALKER RICHER and Quinn Inc. this week will launch communications software for organizations with mixed Systems Network Architecture (SNA) and TCP/IP environments.



REFLECTION SUITE FOR ENTERPRISE *provides both SNA and TCP/IP communications links.*

Reflection Suite for Enterprise has all the existing elements of WRQ's Reflection for TCP suite. It adds emulation and routing support for IBM's mainframe protocols, including 3270, TN3270, 5250, and TN5250E support on the client side, as well as an SNA gateway, an NS router, and CA400 host support.

Reflection Suite for TCP has also been upgraded to support TN-3270E and TN5250E terminal emulation and offers WRQ's World Wide Web browser as well as mail and news clients. Other features include Point to Point Protocol support, SLIP, and CSLIP.

WRQ also offers a CD-ROM drive, called Reflection SelectSuite, for organizations that may not want all the host access, Internet, and intranet applications and protocols available in either offering.

The $399 version of Reflection Suite for TCP and the $449 Reflection Suite for Enterprise are scheduled to ship Feb. 8.

WRQ, in Seattle, can be reached at (800) 872-2829.

Ascend, Compatible work to raise WAN options

By Luc Hatlestad

ASCEND COMMUNICATIONS Inc. and Compatible Systems Corp. will announce this week remote access routers that promise to provide increased security and flexibility.

Compatible Systems' Advanced MicroRouter series offers dual-Ethernet firewall routing, allowing users to create an Internet network while keeping incoming traffic off of the corporate network.

Ascend's Pipeline 130 family integrates into one box a router, a DSU/CSU, and an ISDN NT1 unit. It also features support for frame relay, ISDN, bandwidth on demand, and security.

Ascend at first to offer a fully integrated router, analysts said.

"The Pipeline 130 is a multiplatform box with really good interfaces," said Maribel Lopez Howard, an analyst with International Data Corp., in Framingham, Mass. "A lot might want frame relay, ISDN, or something else, and it's all there."

In addition to supporting frame relay and ISDN, the Pipeline 130 supports SW56, DDS56, and T1/FT1. The router comes with remote networking software and security features such as a password authentication protocol, challenge handshake authentication protocol, calling number ID, and Token ID.

It is shipping now with ISDN Basic Rate Interface (BRI) support using a T1 interface for $1,995, with SW56 and DDS56 support for $1,995, or with ISDN BRI and DDS56 support for $1,895.

Compatible Systems' Advanced MicroRouter series includes the 1200i and 1220i Internet routers and the 2200R and 2220R multiprotocol routers. The 1220i and the 2220R each have two Ethernet ports that let users route Internet traffic separately. The 1200i and the 2200R have one Ethernet connection.

All four routers have two WAN ports, including one synchronous V.35 port that supports speeds from 56Kbps to T1, and one synchronous/asynchronous RS-232C port that supports speeds from 28.8Kbps to 256Kbps.

The 1200i costs $1,495. The 1220i costs $1,695. The 2000R costs $1,695, and the 2220R costs $1,895. All products will ship in February.

Ascend, in Alameda, Calif., can be reached at (510) 769-6001. Compatible Systems, in Boulder, Colo., can be reached at (800) 356-0283.

NetMetrix

Continued from page 37

These agents focus on software integration and do not incorporate data collected by NetMetrix hardware probes, nor will the PerfView Analyzer console display SNMP data collected through Network Node Manager, HP's network mapping and event monitoring application.

In addition to offering the agent integration, HP's new NetMetrix Web Reporter will enable network managers to distribute RMon reports globally to any network client that has a Web browser.

The Web software will translate reports generated by HP's NetMetrix Reporter into Hypertext Markup Language. The RMon-based reports can be viewed on any PC with a Web browser and feature hypertext links that will allow users to drill down from enterprise-level views to network hot spots.

The PerfView MeasureWare Agent and the PerfView Analyzer are available now. The agent costs $2,000, and the analyzer sells for $8,000.

The NetMetrix Internetwork Response Agent and the NetMetrix Internetwork Response Manager will ship in April. The agent will cost $495, and the manager will cost $3,995. The NetMetrix Web Reporter will also ship in April for $4,995.

HP, in Palo Alto, Calif., can be contacted at (800) 452-4844.

Mahoney

Continued from page 37

like to call the three inters — it's the Internet, it's the interenterprise, and it's the international phenomenon.

Please elaborate on the company's recent reorganization into two divisions, one for enterprise network services and the other for Internet products and services.

Banyan's fundamental strength in enterprise networking is more attractive and in more demand today than it has ever been. Our directory technology, our messaging capabilities, our integration strengths with respect to these core technologies is increasingly important within the enterprise and is becoming even more important as enterprises start to look to the Internet as a way to extend the scope of their networks out into the business community or all the way down to the individual.

Our proof of concept in these enterprise environments is going to position us quite well for the emerging network-centric model for doing business. And to attack it, we've consciously broken the company into two divisions — the enterprise networking division and the Internet products division.

In recent weeks, we have had both Microsoft and Novell Inc. promoting their directory technologies for enterprise computing and for use on the Internet. How does Banyan's StreetTalk stack up against NetWare Directory Services and Windows NT Directory Services?

For 13 years we have expounded upon the importance of directory services, and finally we're seeing them become an identifiable need. In my belief, Banyan has the only pure view of how that directory should be delivered in the market. It should be platform independent, it should be open, it should support standard protocols and interfaces, and it should be scalable to large enterprises within which there will be multiple OSes and multiple clients. The directory is not just a directory used to find things; it's used to catalog information and is a platform that should be consistent for your view of the network.

Both Novell and Microsoft are projecting an operating system-centric view of delivering a network.

LAN Talk back next week

Paul Merenbloom's LAN Talk will return to this section next week with a discussion about fire walls.

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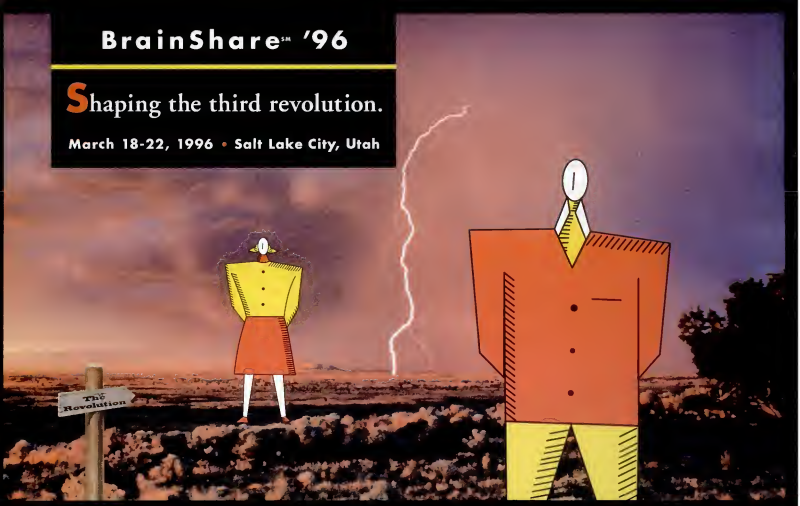

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NetWare Telephony Services™
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PIPELINE

ANNOUNCED

Online Interactive Inc. (OLI) last week announced an agreement with Microsoft Corp. to electronically sell and download Microsoft products on the Internet. Customers can download software from OLI's atOnce server at http://www.portsoft.com/atonce. Users download encrypted software using ZipLock, which also collects credit card data and routes the order to LiteNet, a secure proprietary network.

CISCO SYSTEMS INC. announced last week an agreement to purchase an equity stake in cable-based digital communications vendor Terayon Corp. Cisco will use Terayon's Synchronous Code Division Multiple Access technology and collaborate with Terayon on a cable delivery system that incorporates Cisco's hardware and software. Terayon: (408) 345-932 or http://www.terayon.com; Cisco: (408) 526-4000 or http://www.cisco.com.

SHIPPING

LUNDEEN & ASSOCIATES is shipping Web Crossing 1.0, server software that enables World Wide Web sites to include threaded discussions by creating a new Web page, hyperlinked to the Home page, for each conversation. The product offers optional access control lists for security purposes and can also display users' pictures next to their contributions to a conversation. Web Crossing 1.0 costs $395 for the Macintosh and Windows versions and $695 for the Unix version. (510) 521-5855; http://webx.lundeen.com.

BLUE SKY SOFTWARE CORP. is shipping its Help to HTML Converter for Windows 95 and Windows NT. The utility converts any help file on Windows 3.1 and Windows 95 into a World Wide Web site. Introductory pricing for the software, normally priced at $398, is $199. (800) 459-2356; http://www.blue sky.com.

Microsoft, Novell play catch-up to Lotus on Web

■ Upcoming editions of Exchange Server, GroupWise sport Web access

By Jessica Davis

LOOKING TO satisfy demand for Internet links, both Microsoft Corp. and Novell Inc. are planning last-minute additions to forthcoming client/server messaging products.

These additions are designed to counter the Internet integration efforts of Lotus Development Corp., which has tightly linked Notes 4.0 to the Internet.

Due next month, Microsoft's Exchange Server will include the capability to recognize Uniform Resource Locators (URLs), sources said.

That functionality has not yet been included in any beta version, but it has been released as a patch to a few beta users of Exchange Server.

The patch enables Exchange Server to automatically recognize URLs in E-mail messages and other documents and display them to the user in the blue format of hyperlinks. When the user clicks on the URL, Exchange launches the installed World Wide Web browser and takes the user to the Web page.

The Exchange Web Connector, announced last fall, will then link mailboxes to Web browsers.

Novell plans to announce by the end of this month Web browser access to its GroupWise messaging system, sources said. Web Access is expected to be available immediately before or concurrently with the release in late spring of GroupWise XTD, the client/server upgrade to Novell's messaging product. Web Access will work with GroupWise 4.1 and the XTD version.

Web Access will let users connect to GroupWise and access E-mail over the 'net using any browser.

"It's a useful product," said David Ferris, president of Ferris Research, a San Francisco consultancy. "It's not earth-shattering news, but it's a reasonable thing to do."

Novell in December announced connections to Web server to NetWare Directory Services to make its directory accessible via the 'net.

These enhancements to Exchange Server and GroupWise follow similar moves by Lotus to add Internet functionality to Notes and cc:Mail. Notes 4.0, which shipped Jan. 10, automatically recognizes URLs in messages and other documents. ccMail for the Web, released in December, enables users to connect to mailboxes using a Web browser.

Analysts said moves to tighten integration with the Internet help these companies hedge their bets.

"We saw this as inevitable because of the demand for the installed base," said Ron Rassner, an analyst with Creative Networks Inc., in Palo Alto, Calif.

Novell is expected to license Sun Microsystems Inc.'s Java, though no negotiations are under way, according to a Sun representative.

Novell's key competitors, Lotus and Microsoft, have licensed Java.

"Vendors such as Lotus, Novell, and Microsoft have to license Java to provide dynamic Internet links," Rassner said.

Jason Pontin contributed to this report.

Messaging vendors race to embrace Internet

- **Novell Inc.'s Web Access** is due in late spring. It lets users with World Wide Web browsers connect to GroupWise over the 'net.
- **Microsoft Corp.'s** Uniform Resource Locator (URL) recognition patch is due in late February with Exchange Server. It turns URLs in message and shared folder text into Web hyperlinks.
- **Lotus Development Corp.'s ccMail for the Web** is shipping. It lets users access their cc:Mail boxes via the Internet with a browser.
- **Lotus' Notes 4.0** is shipping. It offers URL recognition.

Cost of creating Web sites skyrockets

By Nick Wingfield

AS WORLD WIDE WEB sites move beyond static Hypertext Markup Language pages to embrace multimedia technologies for use in commercial applications, the cost of creating a World Wide Web presence is escalating dramatically, with custom application development topping the list of expenses.

According to an International Data Corp. (IDC) report released last week, companies building commercial Web sites can expect hardware and software to consume 20 percent of a Web site's overall budget; the remaining 80 percent goes to software development and integration.

NEWS ANALYSIS

"You can create a Web page, but then you've got to link that back to a billing system and to an inventory database," says Marc Winther, an analyst at IDC, in New York. "To build those links requires custom development. [The cost of] the Web server is only the tip of the iceberg."

Companies participating in the IDC survey said they spent from $840,000 to $1.5 million establishing Web sites.

Though Web sites with financial transaction capabilities are complex, companies with less ambitious goals can face hefty programming costs for features such as connectivity to a SQL database.

"Unlike doing a programming job, people go into Web development with more open-ended projects," says David Strom, a consultant in Port Washington, N.Y. "The basic Web server is a relatively small part of the equation. As soon as you start having to write Perl scripts, things can get dicey. Things can get very expensive."

This is because the bulk of Web commerce applications and other advanced Web applications are custom designed today.

"Integrating into Web pages from back-office applications any sort of live information is a very significant investment," says Steve Dieringer, group product manager of electronic services at Banc One, in Columbus, Ohio. "The people that do that work well are very expensive.

"We put up a Web server as a marketing test, and we ran it [on the Internet] on a public-domain server," Dieringer says. "That took very little effort. But [the site] was ugly; the content was very static. I was barraged with E-mail from consumers wanting to know when we would offer on-line banking."

The bar has been raised for sites that want to make a mark on the Web with compelling services.

"[Web development] is a lot less design now and more activity, like SQL programming," says Paul Schutt, president of The Collective, a Web design company based in Midland, Mich. "Most of our sites in the past six months have doubled or tripled in price. And we haven't even started using Java yet."

THE WEB HOTLIST

Web sites worth checking out

1. **SAP InfoLine** http://www.sap.com
   Client/server software giant SAP AG spotlights its applications systems on this sprawling site. The Industry Focus area gives examples on software systems solutions for various vertical markets, including health care and finance.
2. **Sequent** http://www.sequent.com
   Sequent Computer Systems Inc. presents information on its client/server architectures and systems. Resources available include Enterprise, Sequent's magazine for information executives, and several technical white papers.
3. **Webmaster Reference Library** http://www.webreference.com
   Andrew B.King has compiled a comprehensive compendium of resources for building and managing a World Wide Web presence. Topics covered include legal issues, usage statistics tools, security, and Internet file formats.
4. **MetaTools** http://www.metatools.com
   MetaTools Inc. serves up a colorful presentation of its graphic imaging and multimedia software tools and applications. The MetaTools University area features tips for using Kai's Power Tools and improving Web page design.
5. **Pegasus Mail** http://www.cuslm.ca/pegasus
   New Zealander David Harris offers free downloads of Pegasus Mail, E-mail software for DOS, Windows, and Macintosh. Links to mail add-ons, open encryption software, and the Pegasus mailing list are also available.

Send URL suggestions to james_battey@infoworld.com

THE WEB AND LOTUS NOTES WORK BETTER WHEN THEY WORK TOGETHER.

At this very moment, the World Wide Web is opening up a whole new class of intra- and inter-enterprise applications. Anyone with a Web browser has the freedom to search and browse millions of pages of information. It's possible to deliver information about your company and its products and services directly to millions of prospective customers.

As Web applications and tools evolve, it's critical that they incorporate many of the robust capabilities you've come to expect in traditional host- or PC-based systems.

Imagine Web applications that offer flexible tools for searching, querying, and incorporating

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For more information on Lotus Notes or for a copy of our White Paper: Lotus Notes and the Internet, call 1-800-828-7086, extension B533 (1-800-GO-LOTUS in Canada). Or explore Lotus on the World Wide Web at www.lotus.com.

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John Dodge

PC WEEK DEC. 18, 1995

information whether it's on the Web or within your in-house legacy applications. Imagine distributed authoring tools that allow anyone to easily create and manage Web information. Imagine forms-routing and workflow tools that integrate Web information with your current business processes. Imagine robust and flexible security to ensure that only the people who should have access do have access. And imagine being able to utilize this information even when you're on the road.

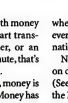
Well, stop imagining. It's all here now, with Lotus Notes® Release 4 working with the Web. Whether you're currently using Lotus Notes or not, it is the affordable way to create rich, integrated applications that help you and your customers take full advantage of what the Web offers. With Lotus Notes, there's no reason to wait to get the Web working harder for you.

FROM THE ETHER · BOB METCALFE

A penny for my thoughts is more than I could hope for on the next Internet

IS IT UNFAIR that only people with money can get a decent education, a heart transplant, a sailboat, a sushi dinner, or an Internet address? I say, wait a minute, that's exactly why money was invented.

Far from being the root of all evil, money is a technology for exchanging value. Money has repeatedly proved superior to its predecessors, barter and plunder. Agreeing on how much things cost is difficult, but money is a separate subject, a neutral and useful technology, right up there with language, fire, the wheel, and those little plastic things that hold your nostrils open when you're asleep.



Money goes back several millennia. Its evolution parallels the growth of trade, industry, prosperity, longevity, literacy, science, art, and democracy. How money evolves over the next few months will determine in large part how quickly the Internet recovers from its catastrophic collapse (or collapses) in 1996. How the many new kinds of digital money evolve over the next few years will determine whether commerce on the World Wide Web ever amounts to so much as a blip on the gross national product.

Not many of you thought my last column on digital money was worth a whole 2 cents. (See "On-line services in for small change on the Next Generation Internet," Dec. 25, 1995/ Jan. 1, page 40.)

A few of you, buying into this haves vs. have-nots thing, thought that the Internet and everything on it should be free. You said it's unfair that only people with money can get on the Internet. And anyway, you said, because most of it is free today, it will always be free.

A few of you wisely agreed with me that advertising will increasingly pay for Internet access and content. But then you went overboard, saying the Internet will therefore be free, like television, only somehow better.

Many of you, especially those with heavy Internet appetites, favor paying for your Internet under various all-you-can-eat flat-rate subscription schemes. I suppose you favor flat-rate pricing only as long as it's low.

And a few of you got it exactly right and agreed with me that the Internet needs a kind of digital money that supports sub-penny transactions. You saw clearly, as I do, that inexpensive monies will stimulate fantastic growth in on-line markets for intellectual property, especially newspaper columns and component software.

KEITH KASNOT

How many times while browsing the Web have you clicked on a hyperlink and regretted it? Suddenly, darn, you're stuck down-loading a document of several megabytes through a 14.4Kbps modem from a slow server in Amsterdam. You wait and wait, ending up with another meaningless Web error message. Or you reach up and impatiently click Stop Loading. Worse yet, the megabytes from Amsterdam finally arrive and you find that, because they're a subsidized labor of love, they're somebody's home movies or yesterday's news.

Why not have the rendering of hyperlinks indicate the commitment you'd be making if you clicked on them? Wouldn't it be economically sensible if clicking on a hyperlink helped finance its content?

Well, consider having hyperlinks rendered with the sizes, locations, and prices of the documents they reference. The prices would include whatever their owners might want to charge plus the price of transport based on document size and your location.

So, encountering a description of an *InfoWorld* column or a software component on the Web, you might in the hyperlink see its size, location, or price, or all three. Should you decide to click on it, the document comes back, automatically paid for right out of your electronic wallet. Or, if the price exceeds some threshold, when you click on the hyperlink your electronic wallet warns you and asks for confirmation.

Next week, in addition to making the 1995 *InfoWorld* Iway Commerce Award to a digital moneyman, I'll explain an experimental system for supporting subpenny Internet transactions (http://www.research.digital.com/SRC/millicent). The following week, we'll learn about a credit chip working its way to your PC.

In the meantime, because 2 cents was too much, would you consider paying maybe 2 mils for this column?

Bob Metcalfe invented Ethernet in 1973 and founded 3Com Corp. in 1979. He receives E-mail at bob_metcalfe@infoworld.com via the Internet.

Mainframes

Simware connects mainframes, Web pages

By Yvonne L. Lee

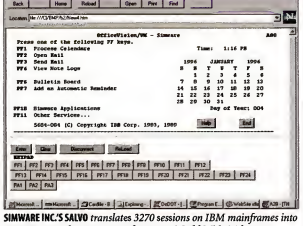
A SOFTWARE PACKAGE due in the second quarter will make it possible for organizations to link mainframes to World Wide Web pages.

Simware Inc.'s Salvo Personal Edition for Windows, scheduled to ship at the end of February, is designed to replace a Telnet 3270 application running on a PC. It translates the information from the 3270 session into Hypertext Markup Language and presents the session inside the Web browser.

In March or April, the company will offer a server product that will run a group's mainframe session inside any graphical Web browser, regardless of platform.

Salvo Server Edition will add additional functionality by allowing Web page designers to combine information from several computers on a single page.

Unlike Salvo Personal Edition, which basically transfers the green and black 3270 screen session onto the Web page, Salvo Server Edition lets Web page designers add the familiar graphical Web elements, including buttons, drop-down menus, sound, images, and video.



SIMWARE INC.'S SALVO *translates 3270 sessions on IBM mainframes into Hypertext Markup Language for use on World Wide Web pages.*

Pricing for Salvo Server Edition has not yet been set. The product is designed to handle 10 or more concurrent sessions and will be priced according to the number of concurrent sessions that will be licensed, said Chris Fedorko, vice president of marketing. Fedorko said the product will probably start at about $500 for 10 concurrent sessions, and the price per concurrent session will decrease as customers purchase greater volume.

Salvo Personal Edition will have a $49 price tag.

Simware, in Ottawa, can be reached at (613) 727-1779.

InSoft brings chat and video to dial-up connections

By Yvonne L. Lee

INSOFT CORP. has launched a series of products designed to bring collaborative computing over dial-up lines to the Internet.

The Interactive Internet Collaborative Environment (IICE) includes chat and shared-whiteboard applications that can be run over 14.4Kbps or 28.8Kbps modems, as well as a video-conferencing tool available with support for 28.8Kbps modems only.

In addition, the IICE includes a developer's toolkit to create custom distributed multimedia applications.

CoolTalk 14.4Kbps costs $49.95 and CoolTalk 28.8Kbps costs $69. The software is scheduled to ship in late January.

CoolView, the videoconferencing tool, plays video at five frames per second, the company said. The $149.95 application is due to ship Feb. 12.

Analysts, however, were skeptical about the product's capability to deliver reasonable quality sound and video at modem speeds.

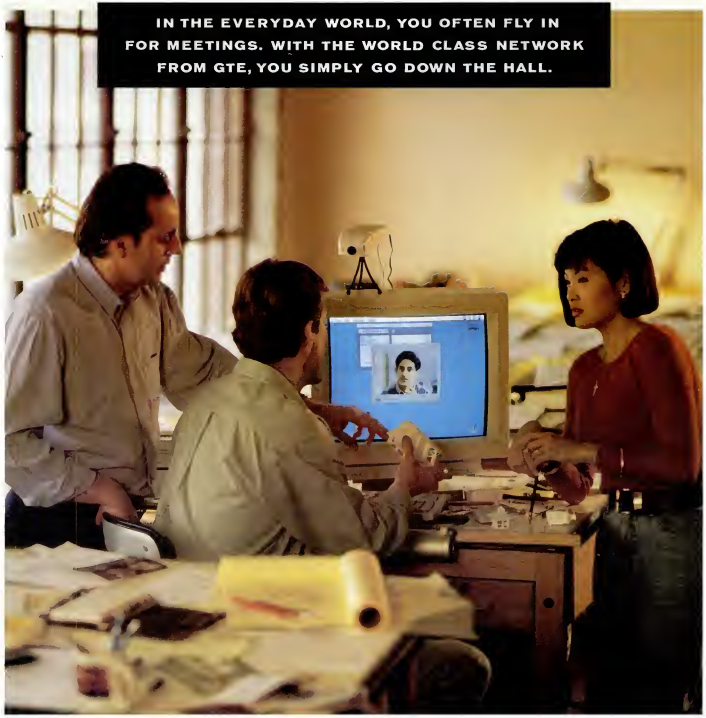
"CoolTalk seems a little bit more feasible than CoolView," said Jessika Goranson, an analyst at Aberdeen Group Inc., in Boston. "I think it's still really a work in development. For sure, the initial product will have problems, and, like anything else, will need to be improved."

▸ **InSoft also makes Communique, a network video-conferencing application that ships standard on several Unix workstations.**

A custom multimedia developer's kit is also scheduled to ship Feb. 12. The $795.99 kit includes tools for building real-time audio and video applications that work with CoolTalk and CoolView.

A fourth element, the InSoft Internet Communications Server, is scheduled to ship in the second half of this year. It is designed to bring the multimedia features of the other IICE products to corporate World Wide Web sites.

InSoft, located in Mechanicsburg, Pa., can be contacted at (717) 730-9501.



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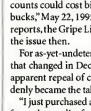
The Windows licensing plan may make you an offer you can't refuse

Is Microsoft Corp. powerful enough to dictate the rules to even its biggest customers? That's the conclusion that some might draw from one of the more intriguing phenomena to hit the Gripe Line in a while. Back in May of last year, Microsoft announced its Select 3.0 volume licensing plan for its software products, including provisions that restricted the use of concurrent licensing to volume customers who purchased the new Maintenance Plus option. Although this caused a brief flurry of complaints from users of metered applications (see "Volume discounts could cost big bucks," May 22, 1995, page 23) in some news reports, the Gripe Line didn't hear boo about the issue then.

For as-yet-undetermined reasons, however, that changed in December, when Microsoft's apparent repeal of concurrent licensing suddenly became the talk of the Gripe Line.

"I just purchased a metering program, performed an audit of computers, and purchased additional licenses to get my site into compliance," said one reader, whose message, except for its lack of obscenities, was fairly typical.



"In comes a package of Microsoft Project that has a revised license inside for nonconcurrent use ... the first I had heard of this.

"What is the purpose of trying to play fair when Microsoft is not?" the same reader continued. "I am not a site big enough to purchase 50 to 500 copies of anything to get a concurrent license agreement. I think all of us should band together and not purchase any upgrades from anyone, including Microsoft, that does not allow concurrent licensing."

Why this sudden outpouring of complaints, six months after the program was announced? I'm not certain, although one common thread seemed to be that many of the gripers' resellers had only recently explained the program — and the actual pricing — to them. Another possible factor was that an introductory offer in which Select 3.0 customers could acquire Maintenance Plus agreements at half the suggested price was coming to an end with 1995.

One thing for certain is that the Select 3.0 program, with its variety of options, is quite complex, so it's not surprising that some customers did not understand all of its implications at first.

"We actually conducted a direct mail campaign to all of our volume licensing customers last spring, and at the same time, we met with all of our resellers to try to communicate this worldwide," says Bob Vellone, Microsoft's general manager for organizational licensing. "Still, that doesn't allow me to believe that 100 percent are going to get word of this."

Vellone can point to many positive aspects of the overall Select 3.0 program, including the fact that those who can afford Maintenance Plus get a more flexible form of concurrent licensing that allows running licensed copies from local hard disks and on portables. However, there is very little he can offer to those like the above reader who simply don't have enough workstations to qualify for a volume license.

"This customer happens to fall into a bucket where they are unable to handle the 50-unit threshold we established as an entry point," Vellone says. Each individual Microsoft application equals one unit, and Microsoft Office is worth two, Vellone explains, meaning that at a minimum one must have 25 copies of Office to qualify.

Customers who, for example, now use 10 metered copies of Office to cover 20 users (with fewer than 10 copies running concurrently) have no alternative under Microsoft's licensing scheme but to buy 10 more licenses.

"It surprises me to think there might be many companies that small actually running their applications concurrently," Vellone says. "If we find there really are a lot of customers in this area, we may have to revisit this."

I didn't hear from small companies on this issue. Some very large, long-time volume customers of Microsoft have problems with it, too. We'll take that up next week.

Ed Foster's Gripe Line examines issues concerning product quality, customer service, and sales practices. Readers can leave gripes at gripe@infoworld.com or at (800) 227-8365, ext. 710. There's also a Gripe Line forum on InfoWorld Electric at http://www.infoworld.com.

The crisis at Apple Computer Inc. has brought out the Mr. Fix-it in everyone these days, including our own columnist, Stewart Alsop. His recent call for Apple to repair itself by buying two companies and for Michael Spindler to step down as CEO brought many responses. One reader even offered himself for the Spindler job. We also heard from a bruised and battered Apple user. And a reader responded with some dismay to Bob Metcalfe's column on charging fees to use the Internet.

Fixing Apple

HAVING WORKED FOR Bolt Beranek and Newman, I can say from first-hand experience that although BBN is a big user of Macs internally, such a marriage would be disastrous. (See Distributed Thinking, Jan. 8, page 90.) BBN is well known for the technologies it has developed, but one thing it has consistently been unable to do is turn these developments into products.

Apple doesn't need any further R&D right now. It needs tough management. It needs to separate church and state, severing the hardware business. It needs to sell software only and act as a catalyst in the hardware standards community.

It needs a solid OS, with a kernel and true multitasking, so it doesn't crash. These concepts have been with us since the 1960s, so why has Apple been sitting on its thumbs all these years? Why won't we see true multitasking until 1998?

It is this need for an industrial-strength, mission-critical OS that stops the Mac from being a decent server and makes marketing to the IS community impossible. Buying a failing business such as NCR Corp. won't solve this problem.

But I do agree that what Apple really needs is the tough management that can see these needs and make the decisions necessary to make them happen.

If they don't, my Power Mac will soon take its place in my closet next to the Atari ST and Amiga.

Jayson Raymond
Seattle
jraymond@connectsoft.com

I HAVE AN EVEN better radical idea to save Apple. They should hire me as CEO, or at least as a VP. I have a marketing background, a degree in theater, and common sense. All three of these are essential for an underdog company, and none of Apple's executives seems to have them.

I'll only require a $200,000 salary, a Newton, and positions for five of my friends.

Ray E. Toler Jr.
Bryan, Texas

I HAVE BEEN QUITE frustrated by Apple in recent years. Product delays, shortages, spotty quality control, and questionable support have haunted the company. I agree that something will have to be done if the company plans to survive.

I wonder why Apple can't also announce a new product — the Intel-based Apple PC. I wonder what System 7.5 + on a PC might look like.

Patrick Kennedy
padraig@qnet.com3

STEWART ALSOP SPENT his entire column in the Jan. 8 issue talking about strategies that Apple computer can use to revive itself and its business. Who cares?

Maybe Alsop should actually take a look at *InfoWorld* once in a while. He could analyze the proportion of articles concerning PC/Unix issues and activities to the proportion of articles concerning Apple issues and activities.

Please tell Alsop to stop wasting my time. Maybe he can start his own magazine called "Alsop's Almost World." He could do feature articles detailing how Apple, Atari, and Commodore are going to lay out a strategy to sell systems to large enterprises.

Don Gray
72662.2733@compuserve.com

Bruised Apple user

I AM ONE OF those bruised and battered Macintosh devotees described in *InfoWorld*'s Enterprise feature story. (See "The Bruised Apple," Jan. 8, page 53.) Although I cannot deny the problems Apple is facing, a significant portion comes from the self-fulfilling prophecies of IS managers and the press who want to see Apple's demise.

There are so many tasks that are new and exciting for Wintel users that Mac users take for granted, such as being able to plug an external device, such as a hard drive or a CD-ROM, into the appropriate port on the back of the machine and have it work by restarting the machine. Or being able to configure a network without having any specific technical expertise. Last year, for example, a colleague and I configured a network with eight Macs and an Ethernet hub, using all the machines as both clients and servers for networked CD-ROM applications, in under an hour. I don't know of any Wintel person who could do that, guru or otherwise.

THESE CONCEPTS HAVE BEEN WITH US SINCE THE '60S, SO WHY HAS APPLE BEEN SITTING ON ITS THUMBS ALL THESE YEARS?

Jayson Raymond

Nonetheless, I hold out little hope for converting the Wintel world to the wonders of the Mac. But I do ask you all this: Do you really want a world with no Apple, where Microsoft has a monopoly on operating systems and applications and Intel has a monopoly on hardware? Will it really be beneficial to the computer and business industries to have no competition, no competing vision, and no thrill for computing as Apple users

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have? The best recipe for a better Microsoft and a better Intel is a thriving Appie.

William Hersh

OLE!

IN ADDITION TO OLE-Baby, OLE-O-Baby-Baby, I think Nicholas Petreley missed a couple of releases in his predictions column. (See Down to the Wire, Jan. 8, page 89.)

OLE-Cow — it's the release that was bigger than OLE-Pig, but Microsoft figured they could milk the market for six months as they got set to release OLE-Moses, the release that should lead OLE to the Promised LAN.

John Beamish
Toronto

On paying to use the Internet

REGARDING BOB METCALFE'S column, "On-line services in for small change on the Next Generation Internet" (see From the Ether, Dec. 25, 1995/Jan. 1, page 40), those 2 cents would add up very fast when Web surfing and would probably end surfing, particularly since files are becoming much bigger as they become more graphically oriented.

Now, someone might like to charge per packet, as you suggest, but they would have to offer something really nice in return, since this model Internet is already here, enormously popular, and growing exponentially.

If this model had never developed, what you suggest would be perfectly logical. But this type of service does exist and is likely to drive out per-packet pricing if it arises, just as unlimited service pricing is driving out hourly pricing schemes.

The real question is whether you get enough subscriptions to justify giving the content away, or whether Novell, Oracle, or another company is paying to advertise on your page. People looking at the increasing traffic on the Internet as evidence that any amount can be charged for the service are completely missing the point. The fact that much of it is free, after the monthly fee, automatically drives demand. People who want specific proprietary information will pay for it individually, but general information is likely to be paid for by users as a group or by advertisers, or simply provided free by millions of companies desiring good will.

Lee Alison
lalison@thwave.net
Huntsville, Ala.

CORBA 2.0 Interoperability

IN THE ARTICLE, "The middleware muddle" (Dec. 25, 1995/Jan. 1, page 1), Emily Leinfuss wrote that the Common Object Request Broker Architecture (CORBA) 2.0 specification is one and a half years away. I would like your readers know that CORBA 2.0 interoperability is available now.

The Object Management Group CORBA 2.0 specification was adopted in December 1994 and provides the communications, routing, and other services necessary to build distributed, component-based systems. CORBA 2.0-compliant Object Request Broker (ORB) vendors include (but are not limited to) Expersoft Corp., Iona Technologies Ltd., PostModern Computing Technologies Inc., ICL Inc., SunSoft Inc., and Digital Equipment Corp.

For more information on CORBA 2.0 or the OMG, call (508) 820-4300, or send E-mail to info@omg.org.

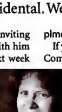
Cheryl Rocheleau
rocheleau@omg.org

FROM THE EDITOR IN CHIEF · SANDY REED

We've got to stop meeting like this ... by accident at trade shows, conferences

At trade shows or conferences, it's always a treat to cross paths with *InfoWorld* readers. Exchanging opinions about what's hot and what's not worth seeing helps our writers and editors understand your points of view. The only problem is that these exchanges are always accidental. We would like to change that.

Paul Merenbloom's recent column inviting LAN Talk readers to get together with him during ComNet in Washington next week (Jan. 29 to Feb. 1) got me to think about the possibility of more interaction between readers and the editorial staff. (See LAN Talk, Jan. 8, page 64.)



No setting is more fitting than a technology trade show or conference. We're all there to weigh the latest and greatest technologies against our needs. A round-table discussion between a mix of editors and readers could serve us all. In addition to talking about products and issues raised by the event, you would get the opportunity to tell us your opinions about *InfoWorld* — what you love and hate, what you would like us to do more or less of, or what you think of our columnists.

If you're going to ComNet and would like to join Merenbloom's group, contact him at plmeren@mci.com.

If you plan to attend NetWorld+Interop or Comdex and are interested in meeting with an editorial group, send E-mail to sandy_reed@infoworld.com. NetWorld+Interop is in Las Vegas on April 1 to 5; Comdex is in Chicago on June 3 to 6.

Also let me know about other shows you plan to attend, so we can consider putting together groups in conjunction with other IS events. We don't attend every show or conference — no one can — but our weekly calendar in the Enterprise Computing section is a good indicator of places we're likely to be.

Each week, we list shows we think are of interest to you. Anything you're interested in, we are too. This week's calendar is on page 62.

Sandy Reed is editor in chief of InfoWorld. *Contact her at sandy_reed@infoworld.com.*

10 YEARS AGO IN INFOWORLD

Not so long ago, you had to pick IBM or Compaq

JAN. 27, 1986 REMEMBER WHEN it was a big deal to decide between IBM and Compaq? Remember when they used to say nobody ever got fired for buying IBM? Now, IBM systems are lost in the crowd. Clones and generic systems are a fact of life.

In a big feature story in 1986, we captured the turning point when users and corporate buyers began to embrace generics, those cheaper, no-name PCs. "During the past year, a growing number of generic IBM PC-compatible computers have appeared on the market to compete with the PC and brand-name compatibles," we wrote. "The generics can be literally no-name computers, usually offered without labels. Sold through small computer dealers, mail-order ads, and at regional computer shows, generic PCs usually cost less than half as much as a similarly configured IBM system."

EARLY IBM PC CLONES *such as this Alphanumerics system were starting to catch on in 1986.*

Despite the new interest in low-cost generic PCs, we also predicted the corporate world would, for the most part, stick with IBM and the big-name clones.

"Generic microcomputer buyers seem more concerned with the level of compatibility than any other issue, say manufacturers and dealers," we wrote. "[But] components of IBM PC clones have become such standard commodities that most observers feel the generic machines almost always achieve a high degree of compatibility."

The other big concern corporate buyers had about generic PCs? Support. Some things never change.

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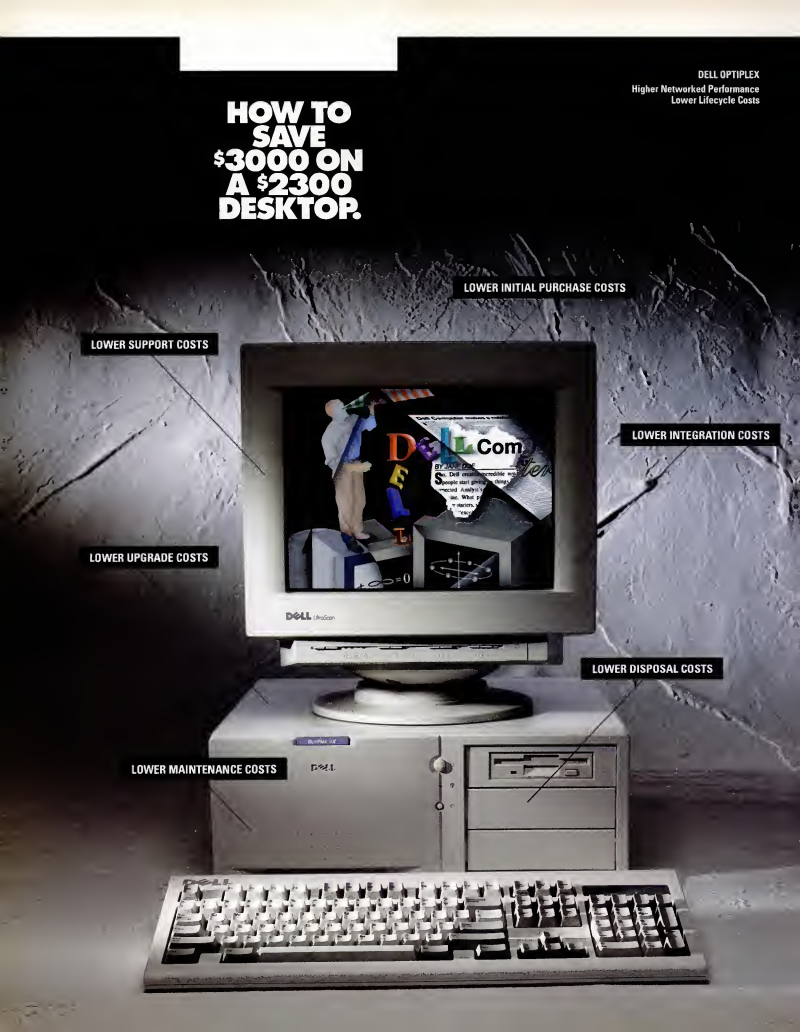

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Switches THREATEN Routers' role

continued from page 1

into a new generation of LAN switches as part of an effort to build virtual LANs (VLANs). (See story, page 56.)

These VLAN architectures effectively shift responsibility for the routing function to the LAN switch, allowing network managers to link users in a virtual network regardless of which LAN they are on.

For example, all members of the accounting department in an organization could be directly linked to each other, without requiring a router to determine which network packets belonged on which LAN.

As networking has evolved, network managers have found that their router-based networks have become too large and cumbersome to move traffic efficiently. And with the increase in remote offices and telecommuting, there has been an increase in network congestion and bottlenecks.

Although network vendors are proposing a number of solutions to this problem, vendors and proponents of VLAN architectures agree that the routing function has to move from the network's core out to its edge in order to serve as a gateway to WANs and to other LANs. They believe that switches should assume the routing function.

The basic function of a router is to forward data packets based on their network layer address and to provide network services such as security, traffic management, and support for IBM Systems Network Architecture (SNA) network traffic and Quality of Service. (Quality of Service is an industry-standard protocol that measures a system's transmission quality and its availability of service.)

The basic function of a switch is to simultaneously maintain multiple bridges between network devices by means of some sort of internal high-speed backbone. Routers traditionally have been better than switches at maintaining lookup tables of network addresses and have done a better job of converting media types from one to another, such as Ethernet to Token Ring. But now switches are poised to usurp routers' role in departmental or local area networks, though probably not at the WAN level.

LAN switches may displace high-end routers, but don't toss your routers in the junk heap

The good news for network managers is that the first wave of switches bundled with these routing functions can help solve many of their traffic problems.

DelMarva Power and Light Co., in Newark, Del., recently upgraded the backbone of its 1,900-node network by adding Cabletron Systems Inc.'s MMAC Plus switching hubs to supplement its existing Cisco Systems Inc. routers, and it bolstered the hubs by equipping them with Cabletron's routing code.

"We needed to solve some IP traffic problems in the MMACs, and we wanted to preserve our investment in them," says John Scoggin, senior network administrator for DelMarva. "Putting in the routing modules gives us more than enough capacity for the time being."

Changes such as DelMarva Power's are becoming more common as networks expand. Don McCullough, senior product manager at 3Com Corp., in Santa Clara, Calif., describes this philosophy as "switch where you can and route where you must."

A recent report suggests that McCullough's philosophy will be followed by more and more network managers, such as Scoggin. A September 1995 report by International Data Corp. (IDC), a research company based in Framingham, Mass., predicts that the annual growth rate for shipments of high-end routers will shrink from 21 percent in 1995 to 2 percent in 1999, and the growth rate for the

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entire router market will drop from 45 percent to 9 percent in the same period. Another IDC report, from June 1995, predicts that revenue from LAN backbone switches will increase by almost 68 percent between 1993 and 1998.

Some vendors even advocate creating entire local networks with no stand-alone routers. Cabletron runs its entire 1,500-user network on switches, and company officials say their system saves money and improves performance.

"Routers provide good security mechanisms, but when you enable some of them, you take a performance hit of as much as 40 percent," says Trent Waterhouse, market manager for LAN switching at Cabletron's Rochester, N.H., headquarters. "You still need routers for WAN connectivity, but we have many users running 5,000- to 10,000-node networks with no LAN routing."

Despite this intensifying focus on switches, many industry observers are warning users not to abandon routers altogether. A report completed last year by the Gartner Group Inc., a Stamford, Conn.-based consultancy, said network managers should "switch for bandwidth but route for segmentation." The report concluded that users who set up networks based entirely on switches will wind up with a LAN that has high traffic overhead, limited protocol control, and a lack of segmentation, security, and network topology information.

ATM MAY DECIDE. The answer to the question "whither ATM?" will have a big impact on the future of routers, analysts say. Widespread adoption of Asynchronous Transfer Mode (ATM) could seriously displace routers, but ATM's high price has put it out of reach for most applications beyond the backbone.

ATM has been hailed as a do-everything technology that can transmit voice, video, and data, as well as solve everyone's bandwidth allocation problems.

If cost weren't an issue, this would be true. Because of its fixed-length cells, ATM can carry time-sensitive data and enable switch designers to build extremely fast devices using existing technology. ATM switches work over LANs as well as WANs. ATM's long-term potential for higher speeds seems unlimited. Among the vendors who are shipping or developing extremely fast ATM products are Fore Systems Inc., whose ASX-1000 ATM switch delivers as much as 10 gigabits per second of switching capacity. (See "High-speed LAN backbone switch ships early from Fore," Oct. 16, 1995, page 58.)

"The big issue for the evolution of routers is the development of ATM," says Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J. "The challenge for users will be to make sure they don't turn their big routers into space heaters."

"If router vendors can diminish the importance of ATM at the workgroup switch level, they can reduce the chance ATM will displace their routers," Nolle adds.

Nolle says the failure of vendors to deliver on promises of affordable ATM has caused the vendors to promote VLANs instead.

"The standard for interconnecting VLANs is ATM, but vendors are downplaying the relationship between the technologies," Nolle says.

Fast Ethernet and 100VG-AnyLAN could be the platform upon which VLANs are initially built, although architectural differences from ATM would make VLAN implementations on those networks much more complicated.

There is also considerable disagreement about how soon ATM will proliferate. Although vendors such as Adaptec Software Inc. insist that ATM will soon be viable all the way to the desktop, others are equally certain that it will be years before ATM is widely used anywhere other than on the network backbone.

"There is a huge discrepancy between near-term perceptions and actual needs [for ATM]," Nolle says. "Our numbers show that only 8 percent of users are ATM literate to any degree."

Although conventional wisdom has projected ATM penetration in the United States to be close to 55 percent by 2010, CIMI's numbers are predicting a figure of about 28 percent, Nolle adds.

"By 2010, the elite base will be converted to ATM, but only half of transitional-level staffs and almost no production-level people will have it," Nolle says. "This is the worst of all possible worlds for network managers, because it's a multimode system where nothing dominates." (See "ATM: Hype or hope?" Oct. 30, 1995, page 1.)

When Dave Meyer's router-based network at the University of Oregon, in Eugene, expanded beyond the capacity of its collapsed backbone, the senior network engineer's first choice was to migrate the backbone traffic to FDDI.

"It was OK, but FDDI is a shared media, and it's not scalable above 100Mbps, so we couldn't get dedicated lines with 200Mbps," Meyer says.

With more than 200 subnetworks to manage, the university decided to move to an ATM backbone.

"Where you need bandwidth, it's a nice, scalable solution, because you don't have to change the infrastructure; you can just upgrade the interfaces," Meyer says. "And when ATM becomes more plug and play, we'll see more applications."

The problem for most users is that ATM's price point is still too high to justify its use anywhere other than in the backbone. Meyer and DelMarva's Scoggin agree that it is too soon to push ATM out to the desktop.

"It's still too costly and high risk," Scoggin says. "It's not worth paying a premium for."

WHEN ROUTING ISN'T GOOD ENOUGH

The router market grew into a $3.4 billion industry by providing a way to connect users first in the LAN and later over WANs. Routers operate at Layer 3 of the Open System Interconnection (OSI) reference model, which provides the device with information in the protocol header to enable intelligent data packet processing.

Because they are based in protocols such as Internet Protocol, routers deliver connectionless service in which each packet is independently read and sent along to its destination. This process automatically creates a bandwidth pool that can allocate traffic as needed and achieve high performance levels.

Routers can scale up to a certain extent, but once they pass a critical size, they can suffer performance hits in areas such as Quality of Service, protocol transparency, available port density, and packet latency.

When multitier, router-based networks become too inefficient, it's time to consider switching. Whether the switch is based on frame relay or Asynchronous Transfer Mode (ATM), switching streamlines network traffic, because the amount of processing for each packet is greatly reduced. Switches read only the packet's header before sending it to its destination. And because they operate below Layer 3 of the OSI model, switches can support any protocol.

The fixed-length cells of ATM allow it to move traffic even faster than frame relay does, which enables the transmission of time-sensitive data such as voice and video. And switching provides higher Quality of Service, manageability, and scalability, as well as lower line and equipment costs than routers provide.

Cascade Communications Corp. published last year a checklist of items a network manager should review when deciding whether to move a router-based network over to a switched environment. Among the signs that may warrant a change are a multitier network, too many hop counts between connections, scalability or port density problems, reliability or Quality of Service concerns, high bandwidth costs, addressing limitations, and the need to connect multiple traffic types.

ROUTING EVOLUTION. Although high-end routers are expected to play a lesser role in the future, midrange and low-end routers will grow in importance, especially in remote offices.

IDC predicts that midrange router shipments will increase slowly between now and 1999, and low-end routers will enjoy 25 percent growth during this period.

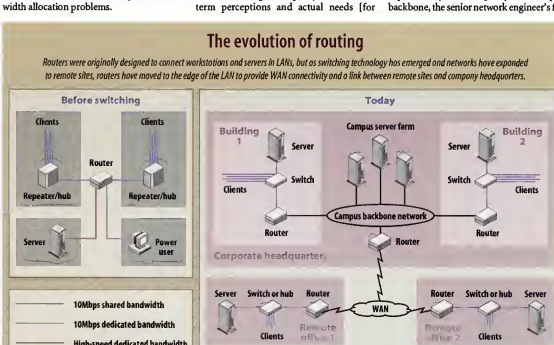
This trend is evident in the different types of devices that traditional router vendors are shipping and developing. Cisco, the San Jose, Calif.-based routing giant whose heavy-duty stand-alone routers currently account for more than 50 percent of the market, has downshifted its efforts in recent months.

Last year, the company introduced its CiscoPro line, a family of products, including edge routers, that was developed in the wake of Cisco's acquisition of Grand Junction Networks Inc. in September 1995. (See "Cisco acquisitions, products target low end," Oct. 2, 1995, page 6.)

The CiscoPro routers are basically stripped-down versions of the company's high-end offerings. Their less robust features were designed for routing over larger LANs

The evolution of routing

Routers were originally designed to connect workstations and servers in LANs, but as switching technology has emerged and networks have expanded to remote sites, routers have moved to the edge of the LAN to provide WAN connectivity and a link between remote sites and company headquarters.



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HOW VLANS WORK

Virtual LANs (VLANs) are being touted by many networking vendors as essential to anyone who wants to expand their network and simplify the moves, adds, and changes that are integral to the growth process.

VLANs are defined as a group of clients that are logically linked even though they are on physically separate LANs. This allows for more efficient bandwidth utilization and alleviates scaling problems by logically segmenting LANs into more manageable subnetworks.

For example, an E-mail message sent from corporate headquarters in Los Angeles to a remote site in Chicago has one logical connection between the two cities but physical connections that run through Las Vegas, Denver, and St. Louis before reaching Chicago.

Although many users have expressed interest in adopting VLANs, the technology has been delayed by the slow growth of Asynchronous Transfer Mode and by infighting over VLAN standards among networking vendors. (See "Virtual LAN vendors feud over protocols," Aug. 28, 1995, page 1.)

and over the WAN. Edge routing requires less robustness because most of the connections are point to point.

"Some of the CiscoPro products still have the robust protocols of their high-end routers, but those protocols don't add anything at the edge of a network," says Frank Dzubeck, president of Communications Network Architects Inc., a Washington-based consultancy.

3Com's McCullough says the key requirement for routers now is ease of use.

"We try to make the boxes as simple as possible, because the responsible person at a remote site is not likely to have the expertise [of a network manager]," McCullough says.

REALITY OVER TECHNOLOGY.

Although the need for stand-alone routers is starting to fade, routing itself will always be needed, vendors say.

"Most people will always have legacy LAN traffic to the desktop and out to the WAN, and it's important to have routing between those connections," says Richard Palmer, marketing director for high-end routing products at Cisco.

Palmer foresees a time when the functions of routers and switches are merged into one all-purpose box, but, he says, that day won't come soon.

"There is a definite convergence, but there's still much differentiation [between routers and switches] in terms of their functionality and software," Palmer says.

The point of convergence may just turn out to be a PBX solution. Companies such as Alcatel Business Systems Inc., Siemens Inc., and Fujitsu Systems Business Inc. are developing applications that would carry voice over ATM lines, with the idea of eventually running an organization's entire network operations over telephone switching systems.

Although this may be a possibility in Europe and Asia, where the use of advanced telephony technologies is more widespread, it is unlikely that this will happen in the United States any time soon, observers say.

"No way," says Tom Bain, research analyst for Meta Group Inc., in Reston, Va. "It will be the turn of the century before we see a real public ATM service, because the telco and switch vendors' infrastructures are too different."

But what's often lost in the discussion of the changing role of routing is the customer's perspective.

Network managers are constantly inundated with the latest information about the hottest new technologies, delivered with the message that they are vital necessities. This process has a numbing effect over the long term, analysts says.

"Some users buy routers without understanding the displacement impact they'll have on the rest of the network," says CIMI's Nolle. Unsure of ATM's role, some are postponing purchases entirely, Nolle says.

As a result, network upgrades happen slowly — an evolutionary process, not a revolutionary one.

Indeed, when Atlanta-based Bank South needed a technology that would allow its 144 branches to communicate with each other, host systems, and the home office, it chose 3Com's SuperStack switching system and Boundary Routing architecture.

Because the bank has an IBM SNA networking environment, it required a system that could support both legacy traffic and new technologies. 3Com's solution employs hubs at the workgroup level, converters to allow SNA traffic to connect over ATM LANs and WANs, and remote office routers to transport traffic from branch offices to the central site.

"The solution gives us a viable network that kept transaction applications on our legacy resources," says Keith Cheney, Bank South's project leader for infrastructure development. "But it moves transaction interfaces to PCs so that any information could be accessed quickly and efficiently from any terminal."

In the long term, this kind of hybrid system will help IS sites hold on to their most important investment.

"Most people, even those who understand networking, get nervous when you change technologies," says the University of Oregon's Meyer. "When you move away from something they've been trained in, you can lose your investment in the people."

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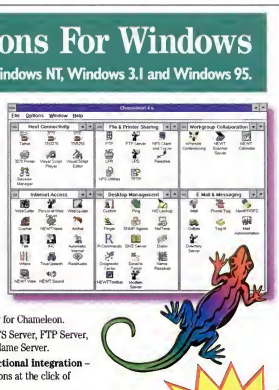

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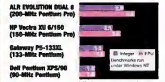

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MANAGER'S BULLETIN BOARD

ESPRIT DE C/S. Esprit de Corp., the San Francisco-based apparel company, has outsourced all of its IT operations to Software Maintenance Specialists (SMS). In 1994, SMS managed Esprit's data processing activities while assisting the company with a client/server conversion project that focused on implementing a new Unix-based system for retail and distribution operations. The initial outsourcing scheme has grown into the whole ball of wax; SMS now supervises IT services on-site at Esprit's corporate headquarters and provides additional support at its Southern California data center facility. SMS, in Santa Ana, Calif., can be reached at (714) 850-6600.

THANKS FOR SERVING AT&T. Tricord Systems Inc., in Plymouth, Minn., is providing AT&T Wireless Services with 19 PowerFrame Enterprise Servers to run business-critical applications in AT&T's Southeast region. The Windows NT servers are designed to consolidate the regional operation and achieve true computer-telephone integration. For example, sales personnel will be able to activate accounts and perform credit checks on the road. AT&T Wireless expects the purchase to help centralize systems management, increase productivity, reduce maintenance costs, and improve customer service. Each Tricord server is scalable and designed to provide the ability to add processors, memory, and peripherals without decreased performance. Contact Tricord at (800) 874-2673 or via World Wide Web at http://www.tricord.com.

JUNK IS JUNK, REGARDLESS OF THE MEDIUM. So concludes a recent Internet-based survey of attitudes toward unsolicited E-mail. According to Esearch, the Southern California company that conducted the survey, most people read at least some of their unsolicited E-mail, giving potential E-mail marketeers a sense of confidence that some of what they pitch may actually be read. Esearch is selling full survey results for $750. For information, contact Janet Westergaard at janetw1@ix.netcom.com. To sign up as a survey participant, point your browser to http://www2.primenet.com/~esearch.

10 reasons you use the Web

We asked 200 InfoWorld readers why their companies use the World Wide Web. Some respondents gave multiple reasons.

BRIAN SOMMA / INFOWORLD

IS SURVIVAL GUIDE · BOB LEWIS

Are RFPs only requests for punishment, or can they actually help you?

OH, #&!@, not another &%## RFP!"

Requests for proposal (RFPs) and runners have two shared characteristics. First, you see a lot of both of them. Second, nobody ever seems to actually enjoy either one. (To the runners I just offended: How come I never see you smiling?)

Clearly, we've become a nation of masochists. But how, other than with an RFP, can you evaluate vendors and products? Form follows function. Your method of evaluation depends on the circumstances.

You generally face one of three situations: (1) you fully understand your requirements and the market, and you need equivalent information from all suppliers; (2) you understand your business, have a general understanding that technology can improve it, and want open-ended suggestions on how different products can help improve your organization; or (3) you need to choose a product from a well-defined category and need something that's good enough. These situations all call for different evaluation strategies.

When you know what you need

When you can clearly define your requirements and have a strong understanding of the available solutions, you should write an RFP. Quite a few books (including my own *Telecommunications for Every Business*, Bonus Books, Chicago, 1992) provide detailed guidance. Three principles are worth mentioning.

First, specify your design goals, not the means by which vendors should address them. For example, if you need a fault-tolerant database server, don't say you need a system with redundant power supplies, backplanes, CPUs, and network interface cards. If you do, you'll get what you asked for (in this case, a system that frequently fails from software bugs). Instead, ask how the vendor ensures fault tolerance. Then you'll learn that one of the vendors provides mirrored servers with shared redundant array of independent disks storage for a lower overall cost and better reliability.

Second, don't withhold information. If you're a Windows 95 shop, for example, don't pretend to be open to other solutions. Just say so in your RFP. You'll save both your vendors and yourself a lot of work.

And finally, if any vendor representatives offer to "help you write your RFP," just laugh gently, compliment them on their sense of humor, and go on to the next vendor (who will make the same offer). Don't take offense — they're just doing their job. Don't take them up on their offer, either.

Looking for help

Sometimes, you don't know all the questions. You know you want to phase out your nationwide Systems Network Architecture network, for example, but have an open mind regarding the best replacement strategy.

You can hire a consultant to help you write an RFP, I suppose.

Or you can hold extensive conversations with a variety of vendors to learn what each has to offer. By doing so, you'll get a broader look at the market and a wonderful education in the strengths (from each vendor) and weaknesses (from their competitors) of each approach currently selling.

In this example, you may find yourself talking to two frame relay vendors, a Transparent LAN Service provider, AT&T and Novell regarding their NetWare Connect Services, and an independent systems integrator. An RFP just won't do for this situation. You need an unstructured dialog in which each vendor can assess your situation in depth and describe a scenario of how their approach will work for your company.

When good enough will do

Let's imagine you've been asked to select a new standard Ethernet network interface card. You could write an RFP or hold extensive conversations with sales reps, but why? Read a few reviews, ask a few basic questions, insist on a few evaluation units (to make sure they work and to learn about any installation glitches), and pick one. Flip a coin if you have to. It's a low-impact decision.

The moral of our story: Don't use a sledgehammer to kill a gnat. You'll get tired, and you'll miss the gnat.

I'm collecting samples of Management-Speak. Example: "There are larger issues involved." Translation: "I've already made up my mind."

I'll publish the winners in future columns. Send me E-mail at Robert_Lewis@ps.net.

Have a management issue you'd like covered? Or an experience you want to share? Visit Bob Lewis' forum on InfoWorld Electric at http://www.infoworld.com.

LEON CHEN-ARMY

Calendar

February

4-7 *Business Process and Workflow Conference, Lake Buena Vista, Fla.* Contact Giga Information Group (formerly BIS), (617) 982-9500.

5-7 *Electronic Messaging Association Public Policy Forum, Washington.* Contact EMA, (703) 524-5550; or E-mail: meet@ema.org.

6-8 *Data Warehousing Conference, Orlando, Fla.* Contact DCI, (508) 470-3880; or E-mail: DCIconf1@aol.com.

9-11 *Black Data Processing Associates (BDPA) National Leadership Meeting, Santa Clara, Calif.* Contact BDPA, (800) 727-BDPA or (202) 775-4301; or World Wide Web: http://www.usbol.com/wjmackey/1996conf.html.

12-16 *Uniform and Enterprise Computing Solutions '96, San Francisco.* Open systems, Windows, NetWare, and SNA. Contact Softbank Comdex, (617) 433-1500.

13-15 *Networks Expo, Boston.* Contact Blenheim, (800) 829-3976.

19-21 *Network World Unplugged, San Jose, Calif.* Contact DCI, (508) 470-3870; Web: http://www.dciexpo.com.

27-March 1 *Seybold Seminar, Boston.* Contact Softbank Expos, (415) 578-6900.

March

3-8 *Share Technical Conference, Anaheim, Calif.* Theme for this year is "Our Bridge to the 21st Century." Contact Share, (312) 822-0932.

4-6 *Inside EDI, San Francisco.* Contact MultiCorp, (214) 424-1508.

5-7 *InterMedia World, San Francisco.* Contact InterMedia World, (203) 840-5634.

5-7 *Netscape Internet Developers Conference, San Francisco.* Contact Integrated Media, (415) 442-0169.

PETER BIANETTI

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Single solution that works with Windows® 95	YES	NO	NO
Single solution that works across Windows NT®, Windows® 3.1, Windows® for Workgroups	YES	NO	NO
Customizable, intelligent install addresses user requirements	YES	NO	NO
Optimizes your network connections with advanced 32-bit TCP/IP VxD kernel	YES	NO	NO
Views, prints, converts documents and graphics without originating applications (KEYview™)	YES	NO	NO
Automatic network connection from the road or office (IP Switching)	YES	NO	NO
High-speed connectivity to anyone, anywhere (ISDN, X.25, CDPD)	YES	Partial	NO
Dynamic network connectivity with automatic router discovery and router fallback	YES	NO	NO
Advanced network troubleshooting tools keep you connected	YES	Partial	YES
Automatic scripting allows easy, one-click access to your most frequent connections	YES	NO	NO
Protects valuable data with Internet Firewall support for your PC (SOCKS, SSL, ANS, others)	YES	NO	NO
Increases desktop flexibility by allowing you to run Netware applications over IP	YES	NO	YES
Seamlessly coexists with other enterprise networks (NetBios, Vines, IPX/SPX)	YES	NO	YES
Single vendor for host access, resource sharing, transport, internet client and server with a worldwide sales and support organization	YES	NO	Partial

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Subaru aims to take the guesswork out of consumer trends

■ Automotive retailer tracks customer preferences in all 50 states to anticipate demand

By Paul Karon

AS ANY PERSON enjoying the conspicuous consumption stage of a midlife crisis can testify, buying a car often is not a rational exercise. The availability of such vital characteristics as the color teal or a $400 automatic headlight wiper can be as crucial to a new car purchase as the miles per gallon or the length of the warranty.

This famous fickleness of new car buyers is what keeps the marketers at Subaru of America Inc., based in Cherry Hill, N.J., in a cold sweat in the middle of the night. It is also why the IS department at Subaru has invested in a client/server data warehouse system based on Sybase Inc.'s SQL Server and Holistic Systems Inc.'s Holos Multidimensional on-line analytical warehouse processing technology.

Well known for its affordable, high-quality autos, Subaru of America, the U.S. branch of the giant Japanese car maker, sells more than 100,000 vehicles a year in this country. But it's up to a small number of Subaru marketing specialists to determine exactly how many cars to order each quarter and in which models, colors, and configurations.

CASE STUDY

To know why green four-wheel drive station wagons will outsell blue models by a wide margin in, say, Nevada — but not in Wisconsin — is the sort of question that keeps the company's marketing managers busy. If the marketers do their jobs right and make the correct forecasts, the company maximizes sales. If they make the wrong decision, thousands of new cars sit shiny but unsold on dealer lots.

About three years ago, Subaru's IS department went to work on the problem, examining the Cobol applications that were still the center of the company's data processing operations.

"We were dealing with systems written 10 and 20 years ago," says Elizabeth Delaney, decision support analyst at Subaru of America. "We needed to do something to survive."

The systems were indeed showing their age. In one typical reporting procedure under the legacy mainframe environment, a marketing analyst at headquarters would take printouts of the marketing data from the mainframe database and manually rekey information into Lotus 1-2-3 tables, only to then fax the spreadsheets to the five regional offices.

All-terrain marketing plan

Who: Subaru of America Inc.

What: A data warehouse project.

Technology: Based on Sybase SQL Server and a multidimensional analytical system from Holistic Systems Inc.

Benefit: Marketing executives better understand their customers' needs, so regions partial to red hatchbacks no longer get shipped a surplus of blue sedans.

There, the regional officials would review the tables for accuracy, make corrections, and fax the corrected versions back to the main office. The corrected information was rekeyed into the composite tables to create the final marketing report. Sound cumbersome? It was.

"Needless to say, this was a process that took an enormous amount of time," Delaney says.

The Subaru of America IS department decided it could increase that pace with a data warehouse.

RUNAWAY COSTS. "Our main objective was to save money and to increase sales, so it was a necessity to do something," Delaney says. "Our systems were outdated and we knew client/server was the way to go."

Their search led them to select Sybase's SQL server, as the engine of the database warehouse, and the Holos report generator from Holistic Systems. The company placed a vast quantity of data in the SQL Server database, information ranging from overall regional sales to individual dealer codes all the way down to the particular vehicle identification numbers (VINs), Delaney explains.

A market planner, for example, can ask for a report of sales of a certain model car, by a certain dealer, and for a single month.

"Now we can make reports on a daily basis and present the information in new ways to look at sales and see what's hot and what's not," Delaney says. "Holos allows us to look at the data in many different views, so we can easily pull up data on a nightly basis to see what cars are selling in what areas of the country."

STICKER SHOCK. Another objective for the new system was reducing some of the more cumbersome vestiges of the old mainframe system. For example, Delaney wants to see fewer of the horizontal green bars in the mainframe printouts that the company's planners had to pore over before the Sybase system made Holos reports available. In a way, these green-bar printouts are emblematic of the limitations of the Cobol-based mainframe legacy that Subaru's business planners have been using for decades.

"My goal is to bring about an environment where people create and send Holos [reports] to each other," Delaney says.

But no matter where the data that fills the Holos reports comes from, Delaney explains, users never know they're using the data warehouse.

"That's hidden from them," Delaney says.

Instead, the users only interact with the Holos reports, called viewpoints under Holistic's terminology, even when the users ask questions that require the deepest inquiries into the data warehouse.

The primary Holos data cube structure can meet most of the marketing queries about regional and subdistrict sales, Delaney explains. But the data cube cannot contain unlimited quantities of information.

But it would be inefficient to put all the information, such as the hundreds of thousands of VIN numbers, out in the data cube. So if the market analyst wants information beyond the limits of the primary data structure, Holos automatically generates a SQL call to drill right into the Sybase data warehouse, Delaney says.

"I'm actually doing a database drill using Sybase commands, but the users still have no idea they're drilling down to the warehouse," Delaney says.

In implementing the new client/server tools, the real heavy lifting came when it was time to shift the various corporate data resources into the Sybase warehouse.

"When you create a data warehouse, you've got to cleanse that data. That means you've got to expose a lot of the problems that have been in the systems over the years," Delaney says.

Essentially, these problems were inconsistencies in the ways different IS users generated, stored, and processed data. In turn, these differences produced contradictory information about the company, the marketplace, and customers.

"Different types of reports would yield different answers to the same questions, depending on how the information was gathered," Delaney says. "And you couldn't really tell which answers were true."

This problem is eliminated under the data warehouse, Delaney explains: all the data is secure in the SQL application.

"Now people are all looking in the same place for data," Delaney says. The SQL data warehouse application sits on just two servers, a Sun Solaris 2000 and a Sparc 20. The Holos software resides on local Novell NetWare 4.1 servers at the LANs serving the five regional offices and is accessed by users running Windows 3.11 on 486-based PCs with 16MB of RAM. A connection between the regional Holos applications and the main Sybase data warehouse occurs automatically by the activation of a connection file containing the Telnet address of the SQL servers.

The market-planning application is just the first of what Subaru's IS specialists say will be a more complete shift to a distributed architecture. In the next few months, two more client/server apps involving the Sybase and Holistic systems will come on-line, says Robert Mayo, business systems consultant at Subaru.

In one of the new implementations, the company's warranty claims processing will be moved completely off the mainframe and into a client/server system.

However, the second of the new applications, a retail sales tracking system that will collect sales information from all 650 Subaru dealers in the country, will be a technology hybrid and will involve the client/server resources as well as the mainframe, Mayo says.

There will always be some mystery in marketing to consumers' fickle appetites, but it is clear that Subaru's data warehouse will boost efficiency, the company's IS specialists say.

"If I can take one person and cut a whole week's worth of simple data entry work, imagine the gain if the whole company can save that kind of time," Delaney says.

Paul Karon is a free-lance writer based in Los Angeles.

PETER TARLOW

SUBARU OF AMERICA INC.'S *Elizabeth Delaney turned the company's mainframe system on its head with a new data warehouse strategy.*

Multimedia authoring software

Multimedia for the masses

Today's multimedia presentations must reach beyond the bounds of graphics, sound, and text. Users are looking for an easy-to-use authoring software package that is powerful and provides trouble-free deployment.

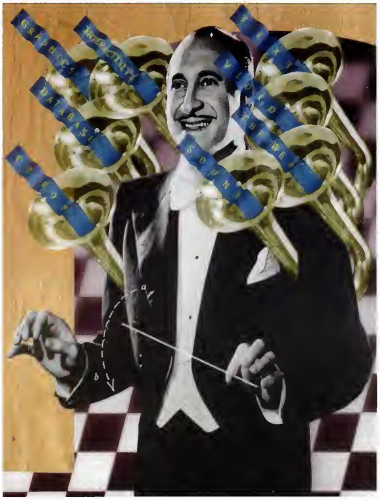
COMPARED

Media Objects
Oracle Corp.

Multimedia ToolBook 4.0
Asymetrix Corp.

SuperCard 2.5
Allegiant Technologies Inc.

Visual Basic 4.0
Microsoft Corp.



ISTOCK PHOTO

Given the flood of entertainment and educational CD-ROMs and the tidal wave of business presentations, it's nearly impossible to avoid multimedia. So much exposure to multimedia has raised audiences' expectations for the quality and usefulness of an application. No longer is it reasonable to merely stir together some text, sound bites, and a smattering of video and expect it to fly. Viewers expect top-notch graphics and interactivity.

For nearly a decade, multimedia authoring programs have given managers, educators, and professional designers a way to integrate disparate media without becoming a C++ programmer. The products in this comparison — Allegiant Technologies Inc.'s SuperCard 2.5, Asymetrix Corp.'s Multimedia ToolBook 4.0, Microsoft Corp.'s Visual Basic 4.0., and Oracle Corp.'s Media Objects — have continued this tradition.

But just as viewers' expectations of titles have risen, there's a commensurate call on the part of multimedia developers in the *InfoWorld* audience for easier-to-use yet more robust authoring tools. Our latest reader survey indicates ease of use is one of the most important aspects of making a purchasing decision. That's not surprising — with corporate belt tightening, time-pressed business professionals are increasingly thrust into the role of content providers. At the same time, users require better tools to make their presentations more effective.

THE MAGIC BEHIND THE MESSAGE. Multimedia software runs the gamut from the simple slide-show packages bundled with office suites, such as Lotus Development Corp.'s Freelance Graphics and Microsoft's PowerPoint, to $4,000 packages designed for specialized needs such as computer-based training. The majority of our survey respondents say they're looking for midpriced, general packages; therefore, we limited the comparison to packages costing less than $750. For this reason, we didn't compare Quest 5.1, offered by Allen Communications Inc., but we reviewed it in a separate story (see page 79).

Our guidelines for authoring paradigms weren't as precisely defined, so we looked at several. The traditional approach, favored by ToolBook, Media Objects, and SuperCard, requires the user to script multimedia events. For example, transitioning text onto the screen or linking text to another section of the program requires you to enter a series of English-like statements, which the software may generate automatically. To achieve greater control over the appearance and behavior of multimedia objects and their connections to other applications, you'll

want to examine general-purpose programming languages. Many developers standardize on Visual Basic 4.0. As a high-level language, Visual Basic shares a lot with products that rely on scripting for advanced functions. Yet there are important differences. For one, you'll need strong programming skills to use this package for multimedia work. Because Visual Basic becomes a lot less visual when creating multimedia applications, you might have to write many lines of code to accomplish animation that other authoring programs do almost automatically. Second, Visual Basic lacks certain image manipulation functions. So Visual Basic is usually used in concert with extensions, such as ImageFX Inc.'s FXTools VB Professional, that add capabilities, including transitions between screens and importing extra multimedia file formats. (See related story, page 80.)

Another approach lets the user build a presentation by connecting icons that represent the production's content and flow. This methodology isolates authors from the mundane work of programming and makes icon-based software appropriate for people who know their subject well (such as teachers) but who aren't necessarily interested in programming. This particular method is used by Quest 5.1.

PUT TO THE TEST. Our test plan took into account changes in users' needs and industry shifts by placing emphasis on ease of use as well as the advanced functions that help make presentations more professional. The multimedia authoring system you choose needs to suit your working style as well as support the types of multimedia you need to incorporate.

When developing a production, you don't want to be bothered with converting files; therefore, the software should recognize common digital formats for still images, video, and sound. Most packages do a reasonable job here, but because file handling capabilities are fundamental to multimedia creation, we bolstered the testing in this area.

Similarly, we expected to import text in a standard format, such as RTF, to eliminate redundant keying and formatting. Even so, users will likely want to adjust size, color, and fonts of individual text blocks, so we closely examined local text formatting functions. Hypertext linking, which provides a quick way for users to move around a presentation or locate data in a database, is another significant feature.

Ideally, an authoring package should automatically adjust the resolution and number of colors of a presentation to match that of the playback machine. Not all multimedia programs support custom palettes, but the four we compared have this feature. Additionally, using a 256-color palette will significantly reduce problems when it comes time to overlay graphics or perform transitions. The ability to precisely synchronize the audio and video elements is of paramount importance. As such, we performed more extensive synchronization testing, which helped us determine whether a program could play sound or video on cue and keep elements in alignment.

Delivering your content involves a lot more than collecting and formatting your media. An authoring application should let you include all types of window elements that users already understand, such as scroll bars, menus, and buttons. Therefore, we took a closer look at the programming environments in our testing. We also looked at database access, because multimedia applications often serve as a front end for corporate databases residing on mainframes or other remote servers. As expected, Visual Basic 4.0's strong OLE custom controls take top honors in this area. ToolBook provides respectable database access, while Media Objects and SuperCard require third-party applications to work with many types of external data.

LETTING IT GO. Making a presentation run flawlessly on your development system is only part of the battle. Often, you may be faced with distribution to users who work with a completely different computing platform. Development costs being what they are, if you need to develop a presentation for Windows and Macintosh platforms, you'll want to make sure it runs under both. SuperCard and Media Objects, which are Macintosh programs, offer a run-time option for Windows. However, applications generated on ToolBook and Visual Basic will not run on a Macintosh.

Today, the most talked-about way to distribute a message is through the World Wide Web. The explosive growth of the Web as a marketing and communication medium is persuading vendors to make multimedia authoring tools that can be used to publish on the Web. With the exception of ToolBook, which uses a separate Web browser to navigate to the sites, none of the packages we evaluated have integrated Internet functions. Still, there's bustling activity in this area. For example, Oracle's separate Web Interface Kit lets you link Web servers with Oracle7 databases. In addition, using Oracle's Custom Extensions Software Development Kit, programmers can use Media Objects to create Hypertext Markup Language documents that could be distributed through a Web server.

A guide to this comparison

070 The right stuff: All four packages offer a range of features for all levels of users. Refer to this chart for a quick look at which product has the right tools to suit your needs.

Contents

66 Report Card
67 Production
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70 Features chart
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78 Post-production
79 Tired of time line terror?
79 Quest 5.1 emphasizes improved speed
80 New tools for multimedia authoring on the Web
80 FXTools/VB Professional 3.0

080 Authoring tools for the Web: In the midst of all the excitement brewing around the World Wide Web, we took a close look at some new technologies that let you create interactive multimedia pages in cyberspace.

079 A different approach: If you're a novice in the world of multimedia authoring — or just pressed for time — take a look at Openinfo Manager from Horizons Technology Inc.

Results at a glance

The narrow scoring range among the programs we compared clearly shows that they all possess the requisite power, import features, and ease-of-use attributes. But Asymetrix Corp.'s **Multimedia ToolBook 4.0** had enough outstanding features to push it to the front of the pack — and earn a Test Center Hot Pick.

ToolBook has evolved to address the needs of nonprogrammers. Although most titles will require some coding, the process is aided with automatic scripting and libraries of prescripted objects. The package imports the broadest range of media elements and is extensible with Visual Basic custom controls, which augment built-in OLE and database capabilities. Packaging and distributing books is automatic, but keep in mind that your shows will run exclusively on Windows systems.

If scoring was based solely on programmability, Microsoft Corp.'s **Visual Basic 4.0** would likely walk away with the trophy. The switch to 32-bit OLE custom control, a wealth of standard object types, and built-in database functions represent outstanding achievements. Even considering the specialized requirements of multimedia, Visual Basic may still do the trick. The program ships with multimedia custom controls and has a strong third-party following. Programming expertise is the only roadblock to using Visual Basic for typical multimedia projects.

Allegiant Technologies Inc.'s **SuperCard 2.5** is field-proven as the authoring mechanism for several successful commercial CD-ROM titles. It has even leapfrogged the multimedia originator: Apple Computer Inc.'s HyperCard. SuperCard has retained the card and stack design and added interesting features such as video and sound recording.

Scripting is mandatory for most tasks; SuperTalk commands handle multimedia playback and the underlying computational requirements. SuperCard is one of the two cross-platform products here, which means your choice of file formats is limited, but you can save a considerable amount of time programming your application.

Oracle Corp.'s **Media Objects** is designed along the lines of SuperCard, but it does not have as many ways to organize and edit large titles. Media Talk, its scripting language, includes a good range of multimedia and data-handling commands. Media Objects is perhaps best when used in conjunction with other Oracle products, such as Oracle7 databases. The software includes Macintosh and Windows run-time players, with separate software available for World Wide Web distribution.

The Score

Multimedia ToolBook 4.0	7.6
Visual Basic 4.0	7.4
SuperCard 2.5	7.1
Media Objects	6.5

INFOWORLD TEST CENTER HOT PICK

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June 19, 1995, page 115
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An authoring software package worth a close look is Astound 2.0 by Gold Disk Inc. We found it has an impressive tool set featuring excellent media control, diverse import capabilities, and top-notch post-production tools.

October 31, 1994, page 100
All the screen's a stage
If you're interested in checking out more competitors in the authoring software market, see this comparison. You'll find writeups on Macromedia Inc.'s Director 4.0 for Windows (the hands-down winner), HSC Software Corp.'s Interactive 2.0, and Apple Computer Inc.'s Apple Media Tool.

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Report Card

Multimedia authoring software

TEST CENTER HOT PICK

GUIDE

- Rating
- Score in points
- See this page for detailed report information

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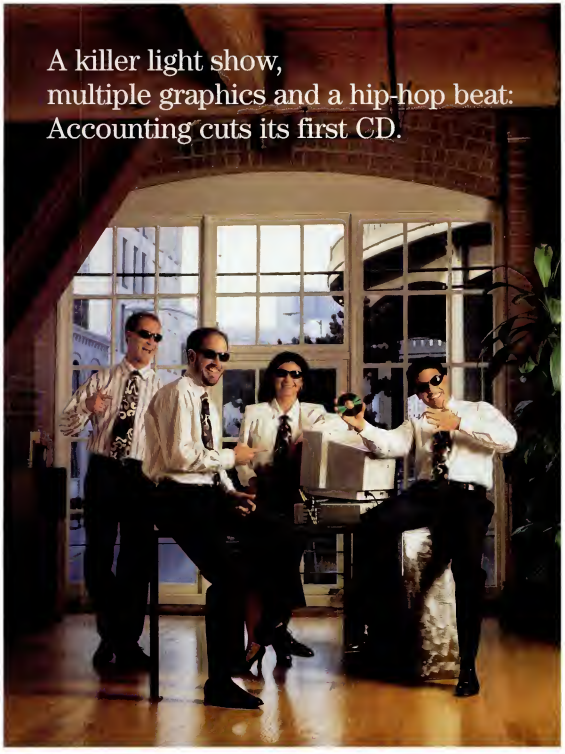
	Weighting	Media Objects	Multimedia ToolBook 4.0	SuperCard 2.5	Visual Basic 4.0
		Oracle Corp. Redwood Shores, Calif. (800) 633-0687, (415) 506-7000 fax: (415) 506-7200 World Wide Web: http://www.oracle.com	Asymetrix Corp. Bellevue, Wash. (800) 448-6543, (206) 462-0501 fax: (206) 637-1650 World Wide Web: http://www.asymetrix.com	Allegiant Technologies Inc. San Diego (619) 587-0500 fax: (619) 587-1314 World Wide Web: http://www.allegiant.com	Microsoft Corp. Redmond, Wash. (800) 426-9400, (206) 882-8080 fax: (206) 936-7329 World Wide Web: http://www.microsoft.com
Performance					
Installation and configuration	50	*Satisfactory* ● 25.00 The Macintosh setup requires you to manually copy files from the CD-ROM to your hard disk. You may also have to manually update system extensions to run certain applications. The main folder is well organized.	*Very Good* ● 37.50 The Windows setup application runs from a CD-ROM and has three install options. You'll want to pay close attention to the large file sizes if disk space is an issue. There is no uninstall option.	*Very Good* ● 37.50 A standard Macintosh installer automatically copies the files from four diskettes. There is no need to update system utilities by hand. The installation routine displays the file size, which helps you judge which files to install.	*Excellent* ● 50.00 The Windows setup application runs from CD-ROM, offers four levels of install, and uses a Wizard to automatically guide you through the Install and uninstall process. We liked the CD-ROM-based online documentation.
Production	250	*Good* ● 156.25 ▯67 The card and stack design is easy to understand, and the program recognizes a fair range of bit-mapped and multimedia file formats, but PC files have to be converted. Media Objects has myriad field types and path-based animation; you can simultaneously control eight multimedia elements.	*Excellent* ● 250.00 ▯67 ToolBook uses a book metaphor and offers a broad range of objects, the largest number of import file formats, and easy management of multimedia clips. You can quickly set the properties of objects and perform hyperlinking without scripts.	*Good* ● 156.25 ▯67 SuperCard uses a card and stack metaphor and provides menus and palettes for importing or creating graphics and objects. Few file formats are supported, but you can record sound and animation. To insert large amounts of text, you have to cut and paste.	*Very Good* ● 131.25 ▯74 The interface is organized into forms and windows, but you'll need to know more code than with the other packages. The program only accepts three standard Windows bit-mapped and draw formats, but the toolbox includes many objects. It has decent control over external devices.
Editing	175	*Good* ● 109.38 ▯70 Editing relies on simple cutting and pasting, which can add to your workload. The Text menu lets you make common text changes. No video editing is available, though a convenient toolbar lets you do shape and bit-mapped editing. Animation paths are especially easy to edit.	*Very Good* ● 131.25 ▯74 ToolBook offers the largest collection of stand-alone editors, but there is no video editing. You can easily change the logic of a presentation, move objects around, and alter scripts, but you can't move entire pages.	*Very Good* ● 131.25 ▯74 We used SuperEdit to create and edit windows, cards, and objects; the Runtime Editor let us make changes as the show ran. Painting and drawing tools are sufficient, and the Text field works like a word processor. SuperCard does not offer animation, video, or audio editing.	*Very Good* ● 131.25 ▯74 Visual Basic provides strong debugging aids and tools for working with code and changing objects' properties, but only elementary graphics and multimedia editing options are provided. The Object Browser lets you move quickly around the application and the code window.
Advanced features	150	*Very Good* ● 112.50 ▯74 The event-driven Media Talk language lets you script most interactions, access data, play sounds and movies, and change the properties of any object or field. The program provides complex functions, such as conditional statements and precise multimedia playback control.	*Very Good* ● 112.50 ▯74 OpenScript is one of the best scripting languages in the group, though it takes time to learn. You can build database front ends, do full-text searching, manipulate DOS files, control multimedia playback, and send E-mail. The prescripted widgets cut app development time.	*Very Good* ● 112.50 ▯78 SuperTalk accurately controls object and media types. Each of the object types can have an attached script, and the Script Editor provides access to all commands. Scripting lets you do advanced math, text manipulation, and multimedia playback, as well as create UI control statements.	*Excellent* ● 150.00 ▯78 Visual Basic is powerful but difficult to learn. OLE custom controls (OCXes) excel at creating connections to external databases and applications. The programming language provides the scripting capabilities you need; you can operate some controls without writing code.
Post-production	125	*Satisfactory* ● 62.50 ▯78 You can't build a self-running application, but free run-time players are available for Macintosh and Windows. Transferring to Windows requires converting some files and rewriting commands.	*Good* ● 78.13 ▯78 ToolBook programs only run under Windows and require the run-time application. The Setup Manager uses two modes to create a program that installs the application on another system.	*Very Good* ● 93.75 ▯79 The Standalone Maker lets you create a self-running program; run-time players are offered for Macintosh and Windows. The Runtime for Windows application converts Mac projects to Windows.	*Very Good* ● 93.75 ▯79 Visual Basic binds you to Windows but compiles applications that will run on 32-bit and 16-bit versions. The Setup wizard creates a setup program for distributing and loading an application.
Support and pricing					
Documentation	75	*Good* ● 46.88 A short tutorial and a generally complete users' guide provide practical knowledge, but the MediaTalk command sections could be broader.	*Very Good* ● 56.25 The documentation includes a users' manual, an OpenScript reference manual, and a Version 4.0 addendum. The manuals are clearly written in a hands-on style.	*Very Good* ● 56.25 SuperCard comes with a tutorial, a users' guide, a script language guide, and a Version 2.5 addendum. The language guide gives examples of commands.	*Very Good* ● 56.25 Well-organized documentation includes a programmer's guide, a language reference, a professional features guide, and a Crystal Reports users' manual.
Support policies	50	*Satisfactory* ● 25.00 Oracle offers 30 days of access to its CompuServe forum or Web support pages. For advanced and personal support, or developer programs, you must purchase a support agreement.	*Good* ● 31.25 You get 60 days of free toll-phone support Monday through Thursday from 6 a.m. to 6 p.m. and Friday from 6 a.m. to 3 p.m. Pacific time. Support is also available via fax and most on-line services.	*Very Good* ● 37.50 You get 24-hour free fax support, plus unlimited technical support via toll phone weekdays from 8 a.m. to 5 p.m. Pacific time. A 30-day money-back guarantee is also available.	*Satisfactory* ● 25.00 Free toll-phone support is available for 30 days after the first call weekdays from 6 a.m. to 6 p.m. Pacific time. A variety of free, 24-hour on-line services and fee-based support plans are offered.
Technical support	25	*Satisfactory* ● 12.50 When we posted messages to the support sites, the response time was slow. The information we received was helpful but not always complete.	*Very Good* ● 15.63 Technical support wait times were never more than a few minutes, and the technicians were knowledgeable. All of our questions were answered completely.	*Very Good* ● 18.75 Support was immediate, and the technicians spent time answering our questions, even following up to make sure we were satisfied with the responses.	*Good* ● 15.63 We waited on hold for an average of 20 minutes, but the service we received was professional and thorough, leading us to answers on a variety of questions.
Pricing	100	*Excellent* ● 100.00 Media Objects costs $99 with the current promotion, putting it on par with Visual Basic's Standard edition.	*Satisfactory* ● 50.00 ToolBook sells for $749, making it the most expensive product, but there are no hidden extras to purchase.	*Very Good* ● 75.00 SuperCard carries a price of $399, with competitive upgrades listing for $199.	*Good* ● 62.50 The Professional edition costs $499, but Visual Basic custom control or OCX addins can add a few hundred dollars.
Final score		6.5	7.6	7.1	7.4



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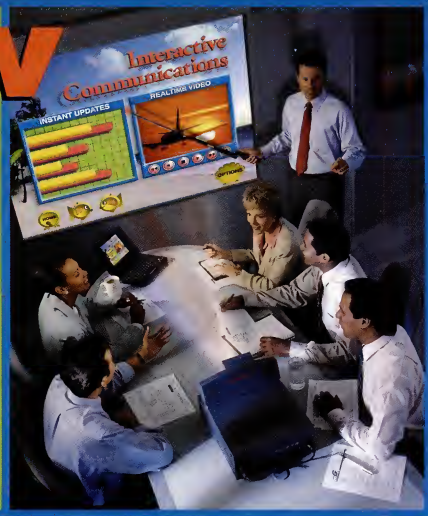

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Production

Media Objects

GOOD

It's generally easy to create a Media Objects presentation using the various toolbars, media import functions, and range of object types, but it can't boast the sheer number of tools and features that ToolBook has for creating productions. In addition, Media Objects either doesn't support several graphics formats from other platforms or required us to convert them from DOS to a Macintosh file format prior to use.

> With Media Objects, we had to convert PC-generated files using Adobe Photoshop before the application would recognize them.

Media Objects offers three different editions: Standard, Professional, and Enterprise. To create our project we used the Professional edition, which is more expensive than the Standard edition but offers more features. An application consists of one or more "stacks of cards." Media Objects' stacks are based on bit-mapped objects, which are interactive, graphical elements that store, present, or control some type of media. During development we tested our application by switching to Browse mode, a useful function that let us activate buttons and make selections from lists, as if the presentation were running on its own.

Media Objects provides an easy way to incorporate multimedia objects into our stacks. The Movie and Sound toolbar made it easy to link QuickTime movies to AIFF or .WAV audio files. After placing a movie container on a card and selecting the digital video file, we entered a specific starting and ending frame. Then we decided whether the film should display in a control bar and whether other objects should overlay the movie during play.

Media Objects lets you simultaneously control eight multimedia elements, such as two sounds, four animations, and two QuickTime files. Producing multiple video playback requires knowledge of the Media Talk scripting language, but it's also possible to play single movies without scripting. You can't play more than one sound or video file at a time in Windows.

When importing graphics files, Media Objects will either load images at the original size and bit depth or perform a conversion for you. Additionally, you can add effects, such as shadows, and specify a different color palette for each card to optimize the performance on 256-color displays.

We used field, pick list, and dataSheet objects to store and present text and numeric data. Fields have properties sets, including scroll bars, horizontal lines, and display styles, such as opaque or shadow. We applied multiple fonts and text styles within fields to text that was typed directly or imported as ASCII files. Pick lists let us present a list of choices to users; the list can contain as many as 256 columns and 2,048 rows of information. We quickly imported this data from an Excel spreadsheet. dataSheets take a step up in interactivity, because — unlike fields and pick lists — they let users record as well as read information.

Media Objects provides paths along which one or more card objects can move. It was easy to vary the size, speed, and visibility of objects as they traveled along paths. The Shape toolbar lets you add simple vector objects, such as rectangles and lines, but you can't import vector drawings from an illustration application.

Multimedia ToolBook 4.0

EXCELLENT

Multimedia ToolBook includes almost everything you'll need for building multimedia applications. The software provides a shell of an application, which you can easily fill with various types of multimedia objects; you can use objects included with the program or those you purchase from other sources, such as Visual Basic. ToolBook recognizes most multimedia file types and ships with many samples to get you started.

A ToolBook application consists of DOS files, called books, which are divided into pages representing the application's screens. Each page can have different objects, such as fields, buttons, and graphics, and objects can be shared among pages by placing them against a background common to several pages.

To help us create books and pages, ToolBook employed "application specialists," assistants that activated whenever we started the program or created a new book. After we answered a few questions, the application specialist created a new book to our specifications.

During authoring, ToolBook displayed a dockable toolbar and floating tool palettes, which gave us quick access to the most-often-used development commands and objects. ToolBook's drawing tool palette includes the basics — arcs, angles, lines, curves, ellipses, polygons, and pies.

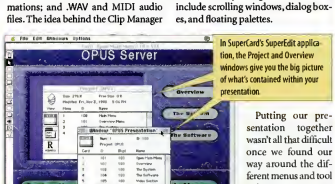
Each ToolBook object has a unique set of properties that defines the object's appearance and behavior, therefore we didn't need to program every action. But when a unique situation occurred, we were able to create a script for the object or share an existing script.

For navigation, ToolBook's effortless hyperlinking merely required us to create a button and point to the desired page using the Properties dialog box; no scripting was involved.

ToolBook does not have the sophisticated database connectivity of Visual Basic, but it does have an object that lets you link to other programs, such as Microsoft Excel. ToolBook is not an OLE server, so you cannot embed an active ToolBook application into another program.

For video and audio files, we switched to the Clip Manager, a librarian that essentially arranges and consolidates .AVI and QuickTime movies; .FLI, .FLC, and .MMM (Macromedia Movie) animations; and .WAV and MIDI audio files. The idea behind the Clip Manager takes time to understand SuperCard's development environment, and the program doesn't recognize as many multimedia formats as we would like it to.

As with Media Objects, SuperCard's basic unit is a card that holds pictures and text. You stack cards together to form sections of your multimedia application. The primary framework for holding stacks of cards is a window. You can create any of eight windows that include scrolling windows, dialog boxes, and floating palettes.



In SuperCard's SuperEdit application, the Project and Overview windows give you the big picture of what's contained within your presentation.

Putting our presentation together wasn't all that difficult once we found our way around the different menus and tool palettes. We constructed the bulk of our authoring project in the SuperEdit application, which is used for building and editing projects. Screen design is created with traditional drawing tools located on several palettes.

SuperCard doesn't erect many barriers to accessing its supported multimedia elements. When importing graphics, SuperEdit let us apply various "ink" effects, such as masking out a background color from a photo. We could also add SuperCard-supplied navigation buttons and data fields, which we could customize in numerous ways.

SuperCard includes separate Utility palettes (available only with the Runtime Editor) that automate many jobs. For example, we used the Radio Button Linker to group several buttons and generate a script that ensured that someone could not highlight both a "yes" and a "no" choice in response to a question. The Animation palette let us create PICS (Apple animation and video file format) animations and play existing files by using VCR-type controls. SuperCard also offers a scripted

SuperCard 2.5

GOOD

SuperCard lets you assemble your applications visually, and it possesses the development tools to let you create quality applications. However, it

HOW WE TESTED

In each product comparison, we typically include a section that explains the focus of our testing, the details of our test plan, and the criteria for scoring products.

In an effort to save space, yet still give you as much information as possible about authoring software products and technology, we moved the information to InfoWorld Electric on the World Wide Web for this issue.

We encourage you to refer to http://www.infoworld.com for this information.

We're also interested to know what you think about this change in format.

Do you miss being able to read this information in print, with the rest of the comparison?

Please send your comments to julie_dunn@infoworld.com.

Netscape Communications Corp.'s Navigator Gold 2.0 gives content creators a powerful WYSIWYG tool for creating media-rich on-line resources. Push-button features ease the publication of complex Hypertext Markup Language documents. Call (415) 528-2555.

DEVELOPERS APPS

mTropolis 1.0, a new object-oriented authoring tool from mFactory Inc., is designed to create interactive multimedia titles that will be distributed through on-line services and on CD-ROM. Some high-performance features, including a beta MovieTracks utility that lets you open multiple QuickTime movies that can be edited, spliced, and reordered into new movies, make this a product to watch. mFactory can be reached at (415) 548-0600.

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▸ *Microsoft Corp. is promoting Visual Basic as a development tool for World Wide Web applications — a sure sign that it's putting on a full court press to fit Web functionality into the product line. It will be some time before OLE and Visual Basic custom controls become Internet aware.*

filmstrip animation technique that places a tiled graphic in memory and plays back sections at high speed.

Unfortunately, SuperCard doesn't recognize many multimedia formats. The software only displays 256-color images, but you can successfully import 24-bit graphics (16.7 million colors) and they are automatically converted.

We imported Macintosh System 7.0 resource and AIFF sound files; additionally, we recorded sounds directly into projects. SuperCard provides extensive control over PICS and QuickTime movie playback and recording.

Besides manually typing or cutting and pasting from another application, there's no quick way to insert large amounts of text. The Text menu offers typical local formatting commands, such as changing fonts and type size.

All the other tasks we had to perform to finish our basic show required scripting. For example, in order to use one of the transitions you have to write lines of SuperTalk code. Fortunately, scripting doesn't have a difficult learning curve.

■ Visual Basic 4.0

GOOD

At the front end, producing a Visual Basic application corresponds to the steps we used with the other packages. We created our interface and set the properties of our objects. Unfortunately, writing code is the last step, and it takes more time and knowledge compared to a program such as ToolBook.

Visual Basic's interface is divided into a toolbar, a toolbox, and a blank form for developing your presentation. The form serves as a window that you customize as the interface of your application. This is where you add controls, graphics, and pictures to create the look you want.

Visual Basic's main graphical limitation is that it only accepts the three standard Windows bit-mapped and draw-type formats. However, Visual Basic's toolbox includes a full measure of objects. You load images into a simple picture box or an image control, which lets you stretch or reduce the images. Various controls let us draw straight line segments, rectangles, ovals, and circles. A grid helped us accurately position objects.

Features

Multimedia authoring software

	Media Objects	Multimedia ToolBook 4.0	SuperCard 2.5	Visual Basic 4.0
Windows support	No[1]	Yes	No[2]	Yes
Macintosh support	Yes	No	Yes	No
Authoring model	Card/stack	Book/page	Project/window/card	Forms/window
Animation file formats supported	Proprietary	FLI, FLC	PICS, proprietary	FLI, FLC
Graphics file formats supported	PICT	PICT, BMP, DIB, WMF, CGM, DRW, DRF, GIF, PCX, PIC, TIF, TDR, EPS, TGA	PICT	BMP, WMF
Video file formats supported	QuickTime	AVI, MOV, PIC, JPG, videodisk, videotape	QuickTime	AVI
Audio file formats supported	WAV, AIFF, AIFC	WAV, MIDI, RMI, CD Audio	Sound resources, AIFF, System 7	WAV, MIDI
Scripting language	Oracle MediaTalk	OpenScript	SuperTalk	Visual Basic for Applications
DLLs support	Yes	Yes	No	Yes
DDE support	No[1]	Yes	No	Yes
OLE support	No	Yes	No	Yes
Visual Basic custom controls support	No	Yes	No	Yes
OLE custom controls support	No	No	No	Yes
Database support	No[1]	Paradox, dBase III	Third-party XCMDs	Microsoft Access, Visual FoxPro, Xbase, SQL Server
Optimize for CD-ROM playback	Yes	Yes	No	No
Hypertext support	Yes	Yes	Yes	Yes
Text handling	Hypertext, multicolor, multifont	Hot words, hypertext, text color, size, alignment	Font, size, styles, color, alignment, borders, shadows, scrolling, selection lists, text search, hypertext	Hot words, hypertext, text color, size, alignment, borders, shadows
Animation handling	Path-based	Path-based, frame-based	Path-based, filmstrip, PICS playback, PICS recording, QuickTime recording	Manual
Path animation	Yes	Yes	Yes	No
Full-featured animation	No	No	No	No
Run-time installer	No	Yes	No	No
Free run time	Yes	Yes	Yes	Yes
Distribution method	Application setup	Application setup	Distribution of stand-alone application or SuperCard player	Application setup

1. Media Objects will offer a Windows edition in the first quarter.
2. SuperCard will offer a Windows edition in the second quarter.
3. Media Objects will offer DDE support in the first quarter.
4. Media Objects will offer Oracle7 database support in the first quarter.

Somewhat like SuperCard, Visual Basic's multiple-document interface (MDI) lets you create an application that maintains multiple forms within a single container. Typically, you would use MDI forms for creating text-based applications, but they are also capable of displaying graphics.

Forms, picture boxes, and image controls display 256-color bit maps. Visual Basic supplies a "logical" color palette that automatically defines the colors needed to accurately display a bit map. For unusual circumstances, you can load custom color palettes into forms and picture boxes.

The most striking difference between Visual Basic and the other programs is the number of available controls. Not only will you find text boxes, shapes, lines, and list boxes, but also file and data handling controls that are not commonplace in multimedia programs. We could set properties so the text boxes could have scroll bars and display multiple lines of text. A password box lets you specify a password character, such as an asterisk, and the maximum length, which could be useful for training applications.

The multimedia MCI control manages the recording and playback of digital audio and video files. Adding this control to our form produced a set of VCR-type buttons for pausing, playing, stopping, and recording files.

Additional OCXes enabled us to play .WAV audio files, show .AVI movies, and handle most other types of Windows multimedia.

Visual Basic gives you the best control over a range of devices such as audio boards, MIDI sequencers, videodisk players, and videotape recorders. The properties for this control are quite extensive, including options for track number and length, record mode, and numerous related multimedia functions. Still, you'll need to polish your programming skills to make this control function appropriately.

Editing

■ Media Objects

GOOD

Media Objects has enough power to let you change an application and modify the characteristics of multimedia elements, but the editing relies on actions such as cutting and pasting instead of more sophisticated methods.

When we cut and pasted objects from one card to another, or from the background to the foreground of the same card, the program copied the object, but not the underlying data. This is an advantage when you need to copy a dataSheet layout but not the information it contains.

Unfortunately, the limitation of this cut-and-paste editing method is that you're never quite sure of your location in the presentation. It would be helpful to have a road map of the show, either as a graphic blueprint or a text listing of cards and their order. Unlike with SuperCard, it's difficult to understand how one Media Objects stack interacts with another.

Media Objects supports six visual effects, such as "dissolve" and "iris," that we used when transitioning from one card to the next. Substituting one effect for another required a simple edit to the script for a particular card or object. Because scripts are placed with objects, you don't have to go on a hunting expedition to find the statements requiring modification.

Perhaps the most useful editing capability involves animation paths. After graphing an animated object's course, we used the mouse to manipulate the size and shape of the path leg. Additionally, by combining Bezier curves (which are available for anima-

SOUND ADD-INS

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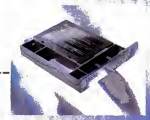

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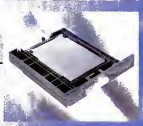

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PRODUCT COMPARISON

tion paths) we created complex paths and animated as many as 16 objects along one path.

The program doesn't provide video or audio editing modules, but we were able to alter the characteristic of sound objects by making audio clips fade, loop, and play from a certain point in a file. We handled some of these from within a dialog box, but the more sophisticated effects required scripting.

■ Multimedia ToolBook 4.0

VERY GOOD

ToolBook continues to offer the largest collection of stand-alone editors. Coupled with the program's standard script and object editing functions, we could alter most of our media as well as the book's operation. The only exception is video editing, which Asymetrix decided not to include in this version.

ToolBook's Object Browser, an outline window depicting the hierarchy of objects in our book, let us select, edit, or delete objects quickly. Unfortunately, the program provides no easy way to move entire scenes within a book; you're limited to cutting and pasting individual items. To ease our editing tasks, we combined different types of objects into a group, then assigned properties and wrote a script for the entire group.

By default, ToolBook automatically changes object styles to the version of Windows you're running. However, we could specify that check boxes, radio buttons, and combination boxes appear as they would under Windows 3.1 even though we were working under Windows 95.

The capable Script Editor made script changes an easy matter. When ToolBook encountered a syntax error, it highlighted the section of the statement that would not execute and displayed a message describing the error. The Debugger then let us work with an object's script while the script was running.

ToolBook's drawing palettes provided reasonable artistic freedom, and the stand-alone Bitmap Editor satisfied our needs for modest changes to any of the image formats ToolBook accepts. The Palette Editor let us adjust the limited 256-color range on different 8-bit images so they displayed side by side without horrible color shifts.

The Clip Manager provided simple control over audio, such as the length of a clip, and we used the Wave Editor to shape sounds. The Cursor Editor helped us create and edit cursors, providing some extra interest in our shows.

■ SuperCard 2.5

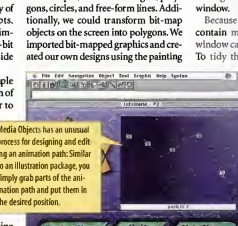
VERY GOOD

Allegiant seems to clearly understand the details of the editing process. First, SuperCard's projects and stacks are organized and connected so changes are easy to make. Second, SuperCard provides two editing environments, SuperEdit and Runtime Editor, so you can pick the best application for the changes you have in mind.

We employed the SuperEdit application to create and edit windows, cards, graphics, and other aspects of a show; the Runtime Editor let us make changes as the show ran.

The program's overviews cut significant time from our editing tasks. For instance, the overview listings made it simple to copy a group of cards from one project and paste them into another. The same procedure works when rearranging cards within a window. The overviews included generic handling instructions or implicit Go-to commands, the logic of our presentation remained intact after shuffling the position of cards within the stack. The Text field acts like a simple word processor; text automatically wraps and you can assign font, color, and style attributes character by character.

SuperCard doesn't offer animation, video, or audio editing, but the built-in drawing tools helped us create and edit basic shapes, such as rectangles, polygons, circles, and free-form lines. Additionally, we could transform bit-map objects on the screen into polygons. We imported bit-mapped graphics and created our own designs using the painting tools. The paint functions won't challenge commercial paint programs, but you do have the ability to brush on different colors or patterns, resize paintings, and crop areas. SuperCard, like Media Objects, let us mix vector and picture images on one screen. SuperCard has options to align objects, change their stacking order, create groups, and lock elements into position.



Media Objects has an unusual process for designing and editing an animation path: Similar to an illustration package, you simply grab parts of the animation path and put them in the desired position.

■ Visual Basic 4.0

VERY GOOD

Visual Basic provides a strong collection of editing tools for moving around your code and changing the properties of objects. But, like the other programs, Visual Basic is weak in the area of editing multimedia elements.

Editing a Visual Basic application isn't far removed from the way the process works in the other programs. Double-clicking on a form or control opens the code window for a particular object, then you use standard Edit menu options to perform tasks such as cutting and pasting. Visual Basic maintains a library of projects; choosing one let us select a particular module and then an individual procedure for editing or pasting into the open code window.

Because Visual Basic forms typically contain multiple procedures, a code window can quickly become unwieldy. To tidy things up, we displayed one procedure at a time. Two drop-down lists within the code window further assisted code writing. After we selected an object from the first list, the second list presented all the possible events for that button. Visual Basic's controls are easy to move around a form with a simple click and drag. You can resize many controls, including text boxes, frames, and list boxes.

Visual Basic uses the right mouse button extensively to display context menus. These pop-ups let us quickly align a control, view the corresponding code, and set properties.

Visual Basic also offers other debugging and editing aids that you would expect to see in a programming environment, such as features that run selected parts of the application and step over other areas.

We used picture, image, line, and shape controls for creating and editing graphical effects. Once we positioned the object, we could easily move or reshape it. However, Visual Basic offers very few design and editing options; there are no curve objects, for example, and minimal pattern fills.

Still, you can either layer your created graphics or import them to achieve certain effects such as masking or clipping part of a picture. Using the Paint OLE custom control, it's possible to draw freehand within a container, but this was a weaker solution compared with what we'd seen in other packages.

▸ We used SuperCard's run-time utility palettes extensively to rotate vector images, nudge elements, and change the shape of graphics.

▸ *Equilibrium Technologies' DeBabelizer is designed to generate a correct color palette from your original graphical images. It looks at a series of images and identifies the common colors in each, then generates one palette that will properly display all the graphics. Contact Equilibrium at (800) 524-8651.*

VIDEO ADD-INS

Four Palms Inc.'s Royalty-Free Digital Video "People Set" is a collection of five CD-ROMs containing digitized video segments categorized by relationships, professions, occupations, sports, and recreation. A proprietary Navigation System gives you search and preview functions, as well as the ability to drag and drop video clips into your presentation. Priced at $99 per CD-ROM or $399 for the five-disc set, it beats the cost of shooting and editing your own video. Contact Four Palms at (703) 834-0200.

Advanced features

■ Media Objects

VERY GOOD

Media Objects has as many powerful editing features as you need to control the media in your application. The Media Talk scripting language met the majority of our test plan requirements; our scripting navigated us through cards, accessed data, played sounds and movies, and made decisions based on user input.

Every stack, card, and object has a script editing window. The window is replete with text editing options, such as find and replace, an on-line language reference, and a syntax menu that displays Media Talk scripting elements from which you can copy and paste. A script debugger activates when a runtime script error is encountered, but Media Objects cannot check syntax during programming.

In all cases, the syntax of the scripting commands follows an understandable format. Scripting enabled us to change the properties of any object, such as the style of a button. We also made finer adjustments, such as changing the font and text of the values displayed in a pickList.

Media Talk includes many scripting elements for fields, some of the most-used objects in a presentation. We imported text from a delimited ASCII file, sent a user to another card from a hypertext field, and locked the text so it could not be changed. We also imported data from a Microsoft Excel spreadsheet into a dataSheet.

We built compound expressions using values and operators, such as multiplying a billing rate by hours to create a subtotal. Media Talk has some complex functions, such as average, time, square root, conditional statements, and logical operators, but they don't have the depth of what's available with SuperCard.

There's also a decent range of multimedia playback controls. We polled an object to determine its state, such as if it was still playing. This allowed us build a script that navigated to a new card after a sound finished. For video, we designed VCR-style functions that played, paused, and advanced a movie frame-by-frame.

■ Multimedia ToolBook 4.0

VERY GOOD

Toolbook's OpenScript represents one of the better scripting languages in the comparison. OpenScript provides a variety of powerful functions that you can't get from ToolBook's built-in tools, including formatting of text fields, hypertext links, logical and financial functions, and connectivity with other applications. OpenScript includes more than 40 new keywords in Version 4.0 — many relating to Visual Basic custom controls

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PRODUCT COMPARISON

▸ In our experience, image, sound, and video editing is best served by bundled utilities. Look for Adobe Systems Inc.'s Premiere for video production and Photoshop for preparing images and backgrounds.

— that make it faster and more convenient to develop applications.

We created a simple database residing within a book and built a front end to a more involved Paradox database. The first step was constructing record fields where users could enter information on multiple pages. We then added buttons for changing records and moving to different pages.

We ran our development time by using prescripted objects (also known as widgets) that we found in the OpenScript library. For more involved tasks, we relied on functions from ToolBook's DLL collection. These programs helped us retrieve data stored in dBase III Plus and Paradox files.

Full-text searching is an important feature when users must locate one phrase or word amidst all the books. To add this capability, we built an external index file using the Build Index command that referenced every word in our text and record fields. In addition, you can manually add keywords to different pages for increased speed and accuracy.

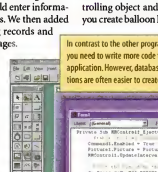
OpenScript let us accurately control multimedia playback. We preloaded a video clip and played it from a specific frame, cued a videotape to the start of a particular segment, and varied the audio levels for added emphasis.

ToolBook has an E-mail Messaging API (MAPI) capability that lets you mail books to other people. MAPI functions are accessible via scripting; we located a sample in the script library that let us incorporate E-mail into our application.

■ SuperCard 2.5

VERY GOOD

SuperCard's scripting language — SuperTalk — is fairly comprehensive and does a good job of controlling object and media types. It lets you create balloon help, control menus,



intercept keystrokes, determine the contents of the Clipboard, and manipulate color properties.

In general, if you're familiar with Apple Computer Inc.'s HyperTalk, the scripting language for HyperCard, you're well on your way to understanding SuperTalk.

We wrote most of our scripts in the Script Editor, which provided quick access to the entire SuperTalk language through five pop-up menu buttons. The package also includes ScriptTracer, which helped us locate syntax and logic errors. Each SuperCard object can have an attached script, which may hold numerous statements. You can always locate and edit a script by simply clicking on the object.

We constructed scripts that opened and read information from files, performed simple mathematics, played sounds and animation, and launched other applications. These events were triggered when the mouse button was pushed, a card opened, or when the presentation was idle for a set time.

SuperTalk provides various operators for more advanced arithmetic, Boolean, and text manipulation. We used these functions in combination with fields and variables to capture data, make decisions based on the content, and return a response to the user. SuperTalk also includes a number of control statements.

SuperTalk also uses PlainTalk speech synthesis capabilities that ship with newer Macintoshes; any text may be audibly spoken using the Say command. For instance, you could write a SuperTalk statement that says, "You've made a choice that is not available, please make another menu selection," every time a user makes an invalid choice from a menu.

Although HyperCard and SuperCard continue to diverge, SuperCard can quickly convert most HyperCard stacks. However, there are some extensions to HyperCard 2.x that SuperCard doesn't implement, such as X Windows.

■ Visual Basic 4.0

EXCELLENT

You won't yearn for more power if you select Visual Basic 4.0 as a pure application development system. However, Visual Basic is more difficult to program than the other products, which is the primary reason you may pause before selecting it for advanced multimedia development.

If you can accept the high price you pay for learning the software, Visual Basic rewards you with rich functionality that extends far beyond the others — especially if you require database access, reporting, and connections to other Windows applications.

One of Visual Basic's strongest features is OLE. Using the Custom Controls tool, we inserted representations of Microsoft Excel and Visio Corp.'s Visio documents into our form, and the applications maintained all their functions. The OLE object handles this operation without special coding.

To make the process even easier, we created a custom menu using the Menu Bar Editor supplied with Visual Basic. This let us customize menus in an interactive manner that required very little programming.

Visual Basic includes a new version of the Jet database engine, the same system that powers Microsoft Access. We noticed improved speed when querying local databases, and the new data-aware controls let us connect to databases without writing any code.

In addition to working directly with external data tables, Visual Basic includes all the variables, constants, and data types you'll need to perform advanced calculations.

Anyone who has fundamental knowledge of Basic programming shouldn't have any trouble performing simple or complex math. Without question, Visual Basic has the requisite decision structures that can test conditions.

An important feature that is often overlooked in multimedia authoring is printing. Visual Basic gives you the best control over the positioning of text and graphics on a printed page. In addition, Version 4.0 includes a new Crystal Reports control that allows reports to be run directly from your application.

▸ Visual Basic has a more advanced scripting language than the other products, but it's also more difficult to learn.

APPS FOR THE WEB

Asymetrix Corp. has developed Asymetrix Web 3D, a Windows-based software package for creating 3-D pages on the World Wide Web. The product, which carries a list price of $179, lets you create 3-D images and automatically convert them to Internet image formats such as JPEG or GIF. It also offers a catalog of preset design elements and 3-D effects, including surfaces, colors, and lighting, that you can combine by simple dragging and dropping. You can reach Asymetrix at (206) 462-0501.

Post-production

■ Media Objects

SATISFACTORY

Media Objects' score in this category reflects the fact that the software offers a bare-bones method of deploying a presentation across multiple platforms. The program doesn't provide a way to build a self-running application, and we faced limitations when transferring Macintosh stacks to the PC environment.

After integrating all the components of our application, we manually copied our files and the included Media Objects run-time player to the distribution media. We had to save video in a cross-platform format, which requires the Apple QuickTime Starter Kit or a similar utility.

We could save embedded sounds and graphics without converting the file formats, but the path names are linked graphics required modification. External commands, functions, and custom Oracle Objects must be recompiled on the deployment platform. You may also have to rewrite any code that's unique to the operating system.

With Media Objects, you can't collect all the pieces related to a stack and create an automatic install program. If your show has a lot of sound and video, you might want to write the native files to a recordable CD-ROM or save the files to a network drive.

▸ Applications built in ToolBook and Visual Basic run only in a Windows environment.

■ Multimedia ToolBook 4.0

VERY GOOD

ToolBook didn't miss a beat when creating the setup application and consolidating all the pieces of our presentation according to our instructions. The setup program and books worked flawlessly on several other systems. Like Visual Basic, ToolBook applications run only in a Windows environment. Unlike Visual Basic, you need to distribute the run-time version of ToolBook with your application.

ToolBook is unique in that it optimizes the performance of CD-ROM presentations by saving a page and associated components, such as screens and sound, near each other on the disc. This process cuts down the access time; however, the extra step extends the build process.

The Setup Manager creates a standalone application from your books and builds the necessary setup program that installs your ToolBook program and supporting media on another computer. The Setup Manager has two modes — Wizard and Expert. The Wizard mode prompts you through several decisions, making a plain-vanilla setup easy; the Expert mode lets you make special accommodations, such as specifying a special directory structure. It's best to start with the Wizard, because it does most of the grunt work for you. Moreover, you can switch to the Expert mode at any point to make special modifications to the setup script.

The Wizard prompted us through several dialog boxes, asking for basic information: the default installation directory, the run-time files to include with our application, and how the files were to be distributed.

Switching to the Expert mode, we changed certain setup items, such as the size of the diskette used to distribute our application. These last-minute changes were made easily from a dialog box with several tabbed pages. The only minor complaint is that you can't go back to the Wizard once you elect to use the Expert mode.

Copyrighted material

SuperCard 2.5

VERY GOOD

SuperCard offers a straightforward method of deploying an application. Using the Stand-alone Maker, you can create and distribute applications that will run without SuperCard, but only when you work with a Macintosh. For distributing your projects to Windows users, Allegiant offers a free SuperCard player that you distribute along with the stack.

Building a stand-alone involves three steps. First, we created our project and included all the menus, windows, and scripts the application needed to operate on its own. Second, we launched and customized the Stand-alone Maker utility; we could specify the playback platform and memory partitions by changing the defaults. Third, we indicated special instructions for the presentation, such as copyright information.

Stand-alone Maker then searched all the cards and other components of our project, locating resources and other required documents, such as external text and graphics files. If something was missing, the software asked us to find the components. The stand-alone version didn't have any problems running on other Macintosh systems.

SuperCard Run-time for Windows is very much like the Macintosh run-time Editor — with the added capability of automatically translating Macintosh SuperCard projects into the Windows format. This feature is sufficient, but the transferring process is a bit convoluted.

All the essential parts of our project worked under Windows, such as AIFF sound files, PICT graphics, menus, and QuickTime movies. Run-time for Windows let us add Windows-specific graphics, such as .BMP, .PCX, and .WMF, to our project and play standard Windows .WAV audio files.

Macintosh-specific functions are areas of incompatibility: text-to-speech, sound recording, and serial port control don't work under Windows. Some external commands and functions are supported as DLLs on Windows, but it's likely that many custom functions will need to be rewritten and recompiled for the PC.

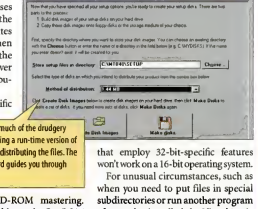
Visual Basic 4.0

VERY GOOD

Visual Basic binds you to the Windows environment, but if that's the platform your target audience uses, distributing and setting up a Visual Basic application is about as good as it gets.

You can freely and easily distribute any Visual Basic application by using the included Setup wizard. This program creates a setup program, builds your application's executable, compresses files, tells you the number of diskettes required, and then copies files to the diskettes or a server for network distribution.

There is no specific provision for CD-ROM mastering. Therefore, you could treat the CD-ROM as a large diskette, but there is no special optimization as with ToolBook. The Setup wizard was very thorough, checking for any custom controls or other files that were required for our program to work properly.



ToolBook eliminates much of the drudgery associated with creating a run-time version of your application and distributing the files. The Setup Manager wizard guides you through the whole process.

Visual Basic compiles a universal application that will run on a 32-bit application or any 16-bit version of Windows and take advantage of the performance improvements of Windows 95 or Windows NT. However, applications that employ 32-bit-specific features won't work on a 16-bit operating system.

For unusual circumstances, such as when you need to put files in special subdirectories or run another program after you've installed the Visual Basic application, you might write a custom setup program. The Setup Toolkit includes a beginning Visual Basic setup project that you can revise to your needs.

An application removal program, included as part of the 32-bit compilation, greatly simplifies deleting your application from a user's system.

▸ *Die-hard Director fans should look for Version 5.0 of Macromedia Inc.'s authoring software program to hit the shelves sometime this year.*

TIRED OF TIME LINE TERROR?

By Jeffrey Gordon Angus

If you're looking for a way to spice up a multimedia presentation and you're not concerned about carefully synchronizing all your elements, Horizons Technology Inc.'s OpenInfo Manager 2.0 can be a powerful and time-saving tool. Rather than hitting the wall trying yet another way to make the time line model work, Horizons has a better solution: no time line at all.

This unusual tool, which is designed for novice users, doesn't offer complex multielement choreography. Media clips can be triggered at the beginning of a scene or in response to a user action, such as pushing a button. Scenes can play for a fixed interval or until the user triggers a scene change.

For better or worse, this approach is the single greatest distinction of OpenInfo Manager. It speeds the authoring process significantly, because you're jettisoning the multielement synchronization, which tends to be the most time-consuming part of the process. On the other hand, if your presentation requires all that simultaneous high action, this may not be the tool for you.

OpenInfo Manager offers some advanced features for professional authors. It operates around a database that is used for storing, retrieving, and previewing images. All frequently used objects, such as templates and programmed buttons, are easily accessible. Furthermore, the task of creating and assigning templates is easier and more powerful than with other products — you simply drag and drop the elements you need, and save.

Other small extras, such as the capability to resize a display location to conform to the size of your media, premade buttons and controls, and the better-than-average selection of media clips, make for a competitive product.

OpenInfo Manager 2.0 lists for $299. Horizons, in San Diego, can be reached at (800) 828-3808.

Quest 5.1 emphasizes computer-based training

By Mike Heck

Quest 5.1, Allen Communication Inc.'s latest multimedia authoring system, lets you create applications for education, business, and entertainment. Though the software is optimized for creating training and educational applications, its object-oriented authoring environment also helps users develop multimedia titles. The program is complete with prebuilt layouts and templates, plus scripting capabilities that offer both beginners and advanced users a flexible authoring environment.

Quest 5.1 has several new features that will improve the usability of your titles, including run-time print capabilities, 15 new graphics formats, and an interface that emulates standard Windows objects. Other improvements include Open Database Connectivity (ODBC) support, RTF import, new student data tracking capabilities, hypertext options, and better transition speed between screens.

A Quest title is made up of three basic elements: modules, frames, and objects. Modules contain frames, and frames contain the title content in the form of objects.

You construct a title by working in the Title Design and Frame Edit modes. The Title Design level gives you a full view of a course or show, making it easy to initially map out the presentation's structure. The Frame Editor lets you design and view screens as they will appear in the final presentation. A simple-to-learn graphical Object List lets you edit the properties of all the elements on a page.

Quest's RTF capability let me import text directly from a Microsoft Word document without losing font size or color information. Additionally, Quest's new text options, such as font style, can be applied to individual words or groups within a text block.

Previously, if you wanted to change the color of one word, you'd have to create it as a separate text block.

In addition, I was able to save data and retrieve information from a Microsoft Access database using Windows ODBC drivers, as well as perform complex SQL queries and searches. Normally this would take time to learn, but I simply cut and pasted directly from a supplied example to set up links to my Access database.

Trainers and educators will appreciate the new computer-managed instruction (CMI) functions. The software includes templates where users can enter information, such as student logon, registration, and other pertinent data.

With the CMI functions, you can capture useful information and quickly save it to an external database via ODBC. The new Text Answer Analysis wizard, another helpful CMI function, helped me establish a process that judged whether a user's answer fit into an acceptable range of choices. Usually this would take a lot of coding, but what could have been a tedious process was reduced to filling in a few forms.

Version 5.1 also let me create windows containing hypertext documents, but it required a separate Windows help editor, such as Blue Sky Software Inc.'s RoboHelp.

Quest 5.1 lists for $3,995, and upgrades are $500.

Allen, in Salt Lake City, can be reached at (800) 325-7850 or (801) 537-7800.

APPS FOR THE WEB

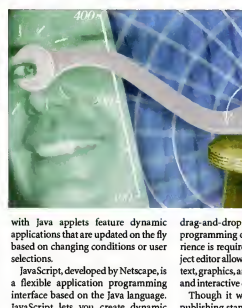
Allegiant is making plans to introduce Marionet, a tool that lets developers use popular authoring packages to build custom applications that will automate and maintain information on the Internet.

Based on simple commands for all major Internet protocols, Marionet can build a maintenance application that will automatically update Web page information or retrieve data from one Internet site and reformat and repost it to another.

Marionet supports SuperCard, HyperCard, and any application that works with AppleScripts. For more information, contact Allegiant at (619) 587-0500.

NEW TOOLS FOR MULTIMEDIA AUTHORING ON THE WEB

By Sasha Alexander



IT SEEMS LIKE EVERYONE is trying to figure out the best way to deliver multimedia presentations to a computer screen near you. As a result, several interesting developments have occurred in World Wide Web authoring in the past year. We're now seeing easier-to-use programming languages that promise greater interactivity between the Web site and the user, and new tools that will add animation, graphics, video, and sound to your Web pages and make them come alive.

Until recently, the language of choice for Web-site creators has been the Hypertext Markup Language (HTML). The language, originally designed for publishing scientific manuscripts electronically, takes a little time to learn and is limiting because it doesn't provide a way to incorporate audio and video elements directly to the Web site.

HTML's recent support of forms has made it possible to create more interactive presentations. Creators can now display a Web page to a user, collect some information from that user, and take appropriate action based on that information. Still, in this age of hypermedia, creators of Web sites are on the lookout for more innovative ways to impress Web users.

BUILDING A BETTER MOUSETRAP

The Virtual Reality Modeling Language (VRML) is an object-oriented 3-D authoring standard that is quickly making its way to everybody's browser. Used for creating Web pages, VRML lets users download 3-D polygon-based scenes, in addition to two-dimensional images. The beauty of VRML technology is in the file size: Users need only download a very small file from the Web and the client machine does all the rendering. In an era of Pentium processors and 3-D accelerators, this could be a technology to watch.

An impressive number of developers are currently offering easy-to-use tools for creating VRML documents. For information, see: http://www.yahoo.com/Computers_and_Internet/Internet/World_Wide_Web/Virtual_Reality_Modeling_Language/VRML/Authoring.

Java, a new programming language for Windows 95 and Windows NT from Sun Microsystems Inc., was designed to add animation, audio, and real interactivity to Web pages. Java, which addresses some of the problems programmers had working with C++, gives you more control over the placement and attributes of text than HTML.

Intended for experienced programmers, Java is used to create stand-alone applications that download directly into a Java-compliant Web browser, such as Sun's HotJava or Netscape Communications Corp.'s Navigator 2.0. Rather than static text content, pages with Java applets feature dynamic applications that are updated on the fly based on changing conditions or user selections.

JavaScript, developed by Netscape, is a flexible application programming interface based on the Java language. JavaScript lets you create dynamic scripting of events, objects, and actions in a Web page, yet it is easy enough for anyone who can compose in HTML. JavaScript is being endorsed by a wide array of Web-related companies and is suitable for authors with a range of programming experience. For more information, see: http:// www.yahoo.com/Computers_and_Internet/Languages/Java.

Microsoft Corp. is making plans to introduce Internet Studio (formerly code-named Blackbird), an on-line authoring tool that lets you create interactive multimedia applications for Web pages. The interface is base mostly on drag-and-drop elements, therefore no programming or HTML coding experience is required. The integrated project editor allows the designer to flow in text, graphics, animation, sound, video, and interactive elements to a Web page.

Though it was once touted as the publishing standard for the Microsoft Network on-line information service, it's now being developed to become a rival standard to HTML for use on the Internet. For more information on Internet Studio, see: http:// www.microsoft.com/istudio.

TOOLS OF THE TRADE. With Progressive Networks Inc.'s RealAudio 2.0, users will be able to give real-time transmission of audio feeds and phone quality sound to their on-line presentations. The technology provides the tools to create audio files on a Web server and enables audio transmissions to be synchronized with video or animation clips. RealAudio heavily compresses the audio files, which significantly decreases the download time; decompression is done on the client system.

The RealAudio Encoder conversion utility, available from the same site, allows users to convert and compress .WAV and AIFF files to RealAudio format. Netscape and Spyglass Inc. have already reached an agreement for binding RealAudio with their products. For more information on RealAudio, see: http://www.realaudio.com.

Xing Technology Corp.'s StreamWorks is delivering MPEG video and high-quality sound over the Internet using compression and playback technology. The StreamWorks media server scales down the video stream using a process called thinning to squeeze the data flow through the modem and allow only essential frames to be sent and viewed. Because StreamWorks is based on standard communications protocols and compression technology, companies can broadcast video or audio over an existing network infrastructure. For information on StreamWorks, see: http://www.xing tech.com.

Macromedia Inc. has announced Shockwave for Director, a new technology that will let users spice up their Web sites with interactive multimedia created with Director. As a plug-in for Internet browsers from Netscape, Microsoft, NaviSoft Inc., and Silicon Graphics Inc., the Shockwave player will enable movies to run on the user's desktop within the browser window. For more information on Shockwave, see: http:// www.macromedia.com.

FXTools/VB Professional 3.0: A stellar multimedia toolkit for Visual Basic

By Mike Heck

When I first learned Visual Basic, I thought its multimedia controls were above average. But after plugging in ImageFX's FXTools/VB Professional 3.0 I found out how much I'd been missing. These Visual Basic custom controls (VBXes), which will be available in 16- and 32-bit OLE versions in the first quarter, give you extended control over images and video. My testing was limited to 16-bit Visual Basic 4.0 applications, but that was enough to convince me of the product's value.

As with Visual Basic, you need programming experience to effectively use these controls, but FXTools does a lot of the work for you. You don't have to make complicated DLL function calls; instead, you simply set the control properties within your main Visual Basic application.

Of the nine features offered by FXTools, image control is perhaps the most useful. It let me employ any of 113 effects, such as wipes and diagonals, to transition between still images. Besides standard bitmap formats, such as .BMP and .JPG, FXTools decompresses and displays interated Systems Inc.'s Fractal Image Format, a technique that compresses images to one percent of their original size. Similarly, the label control helped me apply the same transitions to text, which can have 16 gradient styles.

Like any VBX, I conveniently set the characteristic of each tool (background color, effect speed, or type style) using the Visual Basic Properties window. After that, relatively little programming remained.

If transitions aren't enough, you can spin TrueType fonts at any angle using the rotating text control. When you get dizzy going around in circles, add any of the 100-plus transition and dissolve effects for some relief. If rotating, fading, and splitting text still isn't enough, you might want to mix in the moving text control. Here, you can use predefined and custom paths to streak words across the screen.

In the video realm, FXTools' video control offers 113 solid or patterned transition effects. I applied dissolve effects to the first and last frame of a Video for Windows and QuickTime video segment, building attractive transitions among video clips. The video control works with any media control interface (MCI) device and its simplified command interface eliminates the need to program MCI command strings.

In addition, this collection provides sound and shape controls that extend beyond the standard Visual Basic functions. For example, I used several fill styles, including translucent and transparent, to paint shapes. What's more, a separate editor helped me create odd-shaped hot spots on images, video, labels, and shapes. Typically a hot spot might be a rectangle or a circle, but this package lets you draw polygons and freehand shapes, which is useful when you need to trace the contours on a map or another unusual image.

FXTools/VB Professional 3.0 lists for $349 for the 16-bit VBX; the 32-bit OLE version sells for $399. Current VBX version users can upgrade to 16-bit OLE custom controls for free and move to the 32-bit version for $99.

ImageFX, located in Rochester, N.Y., can be reached at (716) 272-8030.

If you have questions or comments about this comparison, please send E-mail to julie_dunn@infoworld.com.

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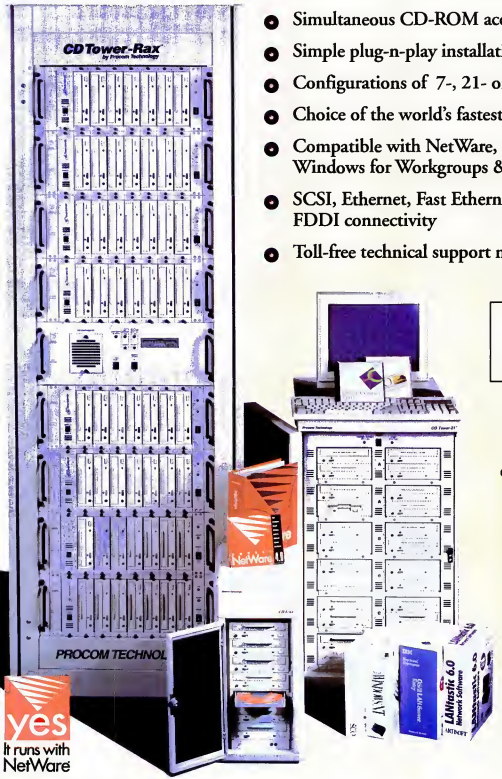

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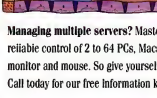

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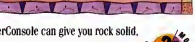

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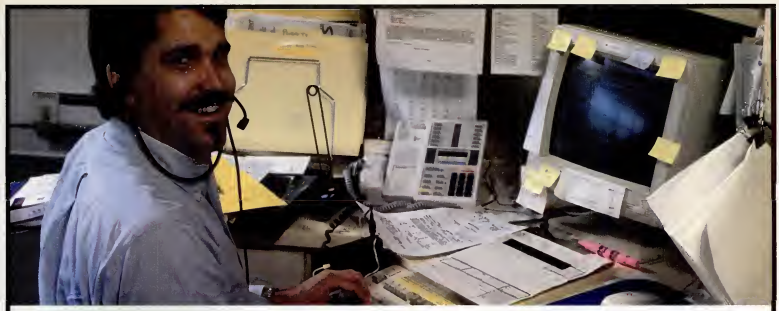

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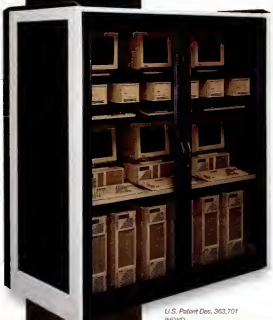

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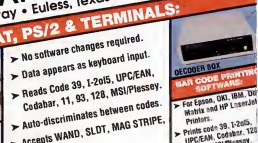

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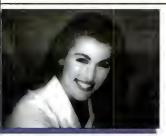

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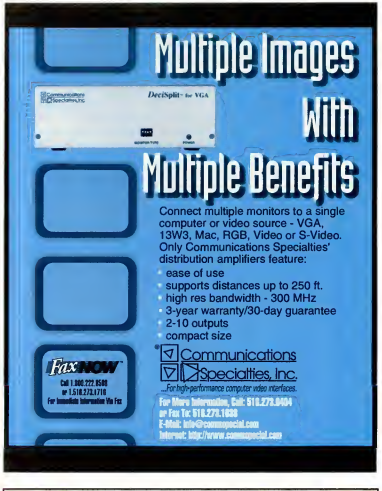

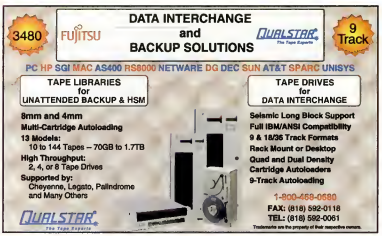

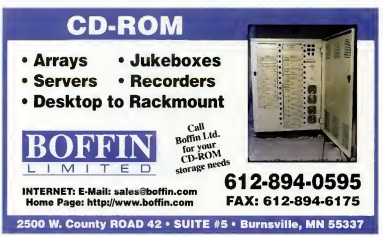

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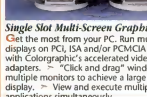

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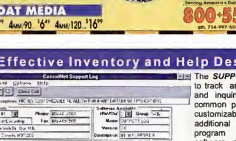

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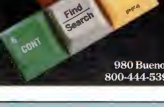

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Upcoming in InfoWorld

JANUARY 29 ENTERPRISE *FEATURE:* Companies running multivendor platform shops have turned to third-party support companies to help them keep their operations up and running. And there are plenty of third-party support companies stepping up to fill this role. This feature will examine what these companies have to offer and see how that stacks up to the needs of today's multivendor platform shops.

SPECIAL REPORT *1995 PRODUCT OF THE YEAR AWARDS:* The 1995 Product of the Year Awards highlight the most noteworthy products discovered by the InfoWorld Test Center and *InfoWorld* editors in a year's worth of testing and evaluation. The winners are products that offer winning solutions to enterprise technology problems in categories such as application development, business productivity, client PCs, Internet, multimedia, and networking. Additionally, some of *InfoWorld*'s favorite columnists present their own awards in recognition of the issues and personalities that dominated the industry in 1995.

FEBRUARY 5 PRODUCT COMPARISON *DATABASE DATA MODELERS:* Data modelers let you create a database model from descriptions of your business structure. They are the key to building a thorough, efficient database. We test four: Bachman Information Systems' solution, which consists of Bachman Reports 4.32, Terrain 1000 6.1.1, Terrain Map 1.1.1, and GroundWorks 1.21; Logic Works Inc.'s Erwin/ERX 2.5; Powersoft Corp.'s S-Designor Enterprise 4.2.1; and Intek Technologies Inc.'s Vivid Clarity 1.1.

ENTERPRISE *FEATURE:* IBM has made major efforts in the past few years to bolster the desktop side of its business, pouring money, time, and effort into the PowerPC platform, OS/2, and Lotus. Has the company kept its core customers happy? Has it won over any converts? What is the confidence level in IBM? This week we'll answer these questions and more.

IN FUTURE ISSUES PRODUCT COMPARISON *CD-ROM SERVER SOFTWARE:* Sharing CD-ROMs on a network can be easier if you purchase software designed to do just that. Some programs make it easier than others. We tested multivolume CD-ROM applications and discovered notable performance differences among the competitors. We compared Logicraft Information Systems Inc.'s LAN CD 3.2, Meridian Data Inc.'s CD Net Plus 6 for NetWare, Micro Design International Inc.'s SCSI Express 2.5 for NetWare, Microtest Inc.'s CD-Now 2.11 for NetWare, and SciNet Inc.'s CD-Manager 3.01.

ENTERPRISE *FEATURE:* Remote access is a hot topic these days as more corporations support remote offices and telecommuters. We'll examine your remote access options and what the cost and management consequences will be depending on your choice.

ENTERPRISE *FEATURE:* It seems as if everyone is touting their product as an "intranet" product, something that will either support or run an internal network based on Internet technologies. We'll take a look at the early adopters and discover the benefits and limitations of today's intranets.

DATABASE DATA MODELERS *come under scrutiny on Feb. 5.*

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▸ Windows groupware

Notes 4.0 is mightily improved

By Patrick Marshall It's easy to wow an audience when the act that precedes you on stage bombs. OK, maybe it's going a bit far to describe a program used by more than 2 million people as a "bomb." But you'd have to look long and hard to find a user of Lotus Development Corp.'s Notes who actually *enjoys* using the product.

That is about to change. My testing of the Notes 4.0 client software shows that the program has taken several giant steps forward, especially in usability.

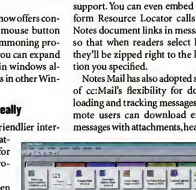
The most obvious improvements are in the interface. Although Lotus continues to resist adopting a fully Windows way of doing things, with Version 4.0 it comes much closer, making it easier for new users to find their way around. The navigation panel, for example, now allows you to cruise through databases, and it employs different views — just as File Manager or Explorer allow you to view directories and subdirectories — to sort the contents in a larger panel. And you can toggle open a preview panel so that the contents of items are automatically displayed as you highlight them.

And that's not all. Version 4.0's toolbars are not only customizable, they're now context sensitive. In addition, the program now offers context-sensitive right mouse button functionality for summoning program features, and you can expand and contract items in windows almost the same way as in other Windows applications.

It's in the mail — really

Apart from Notes' friendlier interface, the most dramatic enhancements for users are in the program's E-mail tools.

Notes Mail has been reborn in a form very much like that of Lotus cc:Mail, with multiple scrolling panels for navigation and display. And the panels are all resizable using simple drag techniques.



NOTES 4.0 *features a much-improved Mail module that resembles cc:Mail and includes a powerful rules capability.*

But the transformations in Notes Mail aren't just on the surface. For starters, Notes Mail now sports a powerful rules feature similar to that found in cc:Mail. You can select from among 10 triggers — such as mail arriving, a new message being created, or a time interval — and you can specify any of 15 different actions to be taken, such as sending a file, moving selected files to folders, or even activating another agent.

Notes Mail comes with a set of 10 prefabricated agents, including ones for automatically archiving messages and filing message attachments based on their keywords. And if the relatively simple actions offered by Notes' agents aren't up to your task, you can use formulas and Notes' new implementation of LotusScript to define just about any operation you can dream up, including updating individual fields in Notes databases.

Also, take note that with Notes, unlike with most other messaging systems, the rules reside on the server and not on the workstation, which means your workstation needn't be running for rules to manage your messages.

Notes Mail also sports stronger sorting capabilities and much more flexible formatting controls over messages. In addition to centralized controls over font type, color, and size and paragraph formatting, you'll also find handy toolbar icons for the most commonly used tools. And Notes Mail offers full OLE 2.0 support. You can even embed Uniform Resource Locator calls and Notes document links in messages, so that when readers select links they'll be zipped right to the location you specified.

Notes Mail has also adopted some of cc:Mail's flexibility for downloading and tracking messages. Remote users can download entire messages with attachments, headers only, or headers and the first few pages, which means you can avoid lots of unnecessary and expensive on-line time. The program's routing and message tracking allow you to perform tricks such as sending an alert if a receiver of a message does not take a specified action.

I was impressed to find that Notes Mail has even integrated task management with the messaging system. Say you receive a message from the boss telling you to revise the attached budget spreadsheet by Monday. You can convert the message to a task and assign it to your assistant. The item will then appear in your task folder with all the relevant information, including due date and status.

The search tools are also impressive. You can enter multiple terms, linking them with Boolean operators. You can limit search terms to specified fields — author, date, form, and so on — and you can include attachments in the search.

In short, these improvements should stop your ranks of Notes users from screaming for alternative mail systems. And if the screams for some reason continue, you can always use cc:Mail as your mail system from within Notes.

More respect for remote users

Several other new features in Notes 4.0 will be especially well received among remote users. For starters, the new server pass-through feature allows a user who calls into one server to switch on the fly to another server on the network. With Version 3.0, users had to hang up and make a separate call to the other server. Also, Version 4.0's incremental, field-level updates of databases means shorter replication times, which frees up the remote workstation sooner and holds down connect charges.

Just as welcome, Version 3.0's confusing procedures for making local replicas of host databases have been replaced with a new utility that makes it easy to select what and how you want to replicate. You can, for example, specify whether deletions made locally should be replicated and whether unmodified documents should be purged after a specified period. Also, there's now a Replicator panel on the desktop that makes it easy to check the status of scheduled replications and offers hands-on control of the process.

Stronger server

Important as these enhancements are, some of the most welcome changes are behind the scenes. I did not receive the Notes 4.0 server software in time for testing, but Notes administrators can certainly expect faster performance, because the server is now a 32-bit application. What's more, a Notes 4.0 server can now take advantage of as many as six processors instead of just two, an improvement that Lotus says should boost the limit of users per server from about 200 to about 1,000.

As expected, Lotus will deliver very broad system support, eventually including 16 platforms and 20 languages. The program is initially shipping with servers for OS/2 and Windows NT and clients for Windows 95 and Windows 3.1. Clients for Windows NT, Power Macintosh, and several flavors of Unix are expected to ship soon, as are servers for NetWare, several types of Unix, and, curiously, Windows 95.

Current sites will also be relieved to find that Version 4.0 is for the most part compatible with Version 3.0. You can use 4.0 clients with 3.0 servers and databases and vice versa, though you will find some capabilities missing if you don't change everything at once. And you can't offer server pass-through unless the servers are running Version 4.0 and mail agents won't work.

All the client packages include the InterNotes Web Navigator for browsing the World Wide Web and importing Web pages. And the server packages include the InterNotes Web Publisher 2.0, which converts Notes databases to Web pages.

Few discouraging words

My initial look at the Notes 4.0 client didn't turn up any major bugs, though there are still a few minor kinks that need to be worked out. For example, I found the online documentation to be in error on occasion. And dialog boxes have an irritating tendency to pop up directly above whatever you're working on.

More important, the program still hasn't learned to pick up its feet. Although the Test Center has not yet run formal benchmarks, I found the program to be decidedly slow, just as its predecessor was.

Finally, there have also been some user reports of problems when mixing Version 4.0 applications with Version 3.0 servers, though we have not yet tested these.

THE BOTTOM LINE

Lotus Notes, Version 4.0

BEST / GOOD

This version offers a much more usable interface, more powerful E-mail, and easier administration.

Pros: Strong E-mail tools; faster replication for remote users; multiprocessor server support; easier to use.

Cons: Relatively slow; some backward-compatibility problems; does not follow Windows interface standards.

Lotus Development Corp., Cambridge, Mass.; (800) 346-1305, (617) 577-8500; fax: (617) 693-0968; World Wide Web: http://www.lotus.com.

Estimated street prices: *$275 for full client (includes development tools); $69 for Desktop version; $55 for Notes Mail; $495 for single-processor server; $2,295 for multiprocessor server.*

Platforms: *Servers available for Windows NT and OS/2. Clients available for Windows 95 and Windows 3.1, with more to come.*

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▸PC memory management software

Venerable DOS memory managers now cover Windows 95

By John M. Goodman

FOR MORE THAN A dozen years, Qualitas Inc. and Quarterdeck Corp. have vied to be the leading maker of PC memory management software. In their original versions, 386 to the Max (now called Qualitas Max), from Qualitas, and QEMM, from Quarterdeck, defined the field; in subsequent versions they refined our notions of what was possible. With DOS, Version 5, first Novell Inc., and then Microsoft Corp. and IBM, bundled memory management tools with the operating system. But many people still sought more than those tools could do, and so both QEMM and Qualitas Max have continued as popular utility programs.

In their latest versions, these two products have been updated to reflect the fact that the PC world is more and more a Windows world. Both products are still excellent as DOS memory managers, and now both are compatible with Windows 3.x and Windows 95.

Each goes well beyond simple compatibility, though. After helping set the stage for Windows with DOS-level memory optimization, each product goes on, in its own way, to help Windows itself manage memory better.

As DOS memory managers, Max 8 and QEMM, Version 8, are hard to beat. I found that QEMM had a little edge on raw power, but it took more care on my part to keep it from messing up my machine. As an aid to Windows memory management, QEMM has a clear edge, but if you have more than about 12MB of RAM and if you run lots of small Windows tool or utility applets, you may find that Max gives you all the help you need.

QUALITAS MAX'S GO-AHEAD *preserves low DOS memory for programs that really need it.*

Windows needs help

QEMM and Max can help if you are running either Windows 3.x or Windows 95. Windows 3.x needs help with its management of memory in three ways. The first is that, by itself, it puts any program that it loads — including DLL files and other protected-mode programs — at the lowest available memory addresses. Often this means that it fills up all of the free space in the first megabyte (a region known to Windows programmers as Global DOS Memory) long before it fills the rest of memory.

The second type of help Windows 3.x needs is with the infamous "system resource" local heaps. These are a number of 64KB regions Windows uses to store information about elements of the GUI and about the running programs. Most Windows users can attest that these heaps are way too small. When any of them begins to get filled, Windows becomes unstable and will frequently crash in a variety of ways.

Finally, Windows can use help managing its global memory heap, which is another name for all the memory it has to work with. Programs such as Connectix Corp.'s RAM Doubler and Quarterdeck's MagnaRAM have been marketed primarily to make Windows seem as if it has more total RAM than is actually the case. (MagnaRAM does only this one job; RAM Doubler also does this, but it helps much more by expanding the system resource heaps and preserving free global DOS memory.)

Naturally, this problem is most severe for users running Windows on PCs without much physical RAM, especially if they try running multiple large applications simultaneously.

Windows 95 addresses the system resource heap issue fairly well. It also mostly solves the Global DOS Memory problem. But it still can use help managing its global heap, especially on machines with relatively modest amounts of total RAM.

What Max and QEMM do

Max addresses only the Global DOS Memory limitation. By default, it puts its Go Ahead applet into your start-up group so that it will load fairly early. That program grabs all the free memory in the first megabyte and then doles out RAM only to those programs that Go Ahead knows need some of it. Other applications are forced to find space at higher addresses.

This strategy is not as powerful as that used by RAM Doubler or Helix Software Co.'s Hurricane, but it may well be all you need. Under Win95, the Go Ahead module essentially does neither good nor harm.

Max also does a little to help with the global heap problem by reassigning any unused upper memory to the pool of extended memory. This assistance is usually minor because the amount of memory it can find and reassign is at best a small fraction of 1MB.

QEMM, on the other hand, addresses all three of the Windows 3.x memory problems. Its FreeMeg feature does something very much like Max's Go Ahead, preserving the first megabyte for only the programs that really need it. Its Resource Manager expands the effective size of the system resource local heaps. Its Memory Multiplying technology is simply Magna RAM under a new name. This feature compresses data in RAM when the CPU is otherwise unoccupied.

The result is that if you are running one or more very RAM-hungry applications and you occasionally pause in your work, the information that gets written to the Windows swap file will be mostly compressed data. The effect is that

THE BOTTOM LINE

Qualitas Max 8

BUY — Max is a more straightforward, automated memory manager for DOS and Windows than QEMM, and should handle most configurations without trouble.

Pros: Powerful; easy to use; superbly compatible.

COLD — **Cons:** Lacks features to enhance Windows system resources or compress data in memory.

***Qualitas Inc.**, Bethesda, Md.; (800) 733-1377, (301) 907-6700; fax: (301) 907-0905; E-mail: info@qualitas.com; World Wide Web: http://www.qualitas.com.*
***Price:** $99.95 list; $29.95 to upgrade.*
***Platform:** DOS, Windows 3.x, Windows 95.*

THE BOTTOM LINE

QEMM, Version 8

BUY — QEMM is a leading memory manager for DOS and Windows systems. It's most valuable when you're willing to tweak settings for full optimization.

Pros: Powerful; easy to install; widest range of memory management features of any product on the market.

COLD — **Cons:** Sometimes overly aggressive, leading to system instability; its handling of multiple configuration start-up files needs improvement.

***Quarterdeck Corp.**, Marina del Rey, Calif.; (800) 354-3222, (310) 309-3700; E-mail: info@quarterdeck.com; World Wide Web: http://www.quarterdeck.com.*
***Price:** $69.95 street price; $29.95 to upgrade.*
***Platform:** DOS, Windows 3.x, Windows 95, Windows NT.*

▸Windows V.34 modem

Supra Simple offers fast 'net access with few hassles

By Jeffrey Gordon Angus

END-USERS' NOISY clamor for a quick connection to the Internet can be maddening for those who have bigger, more strategic work to do. No vendor has yet made an integrated hardware-software solution with documentation of high enough quality that you could just drop the product on the desks of your squeaky wheels and let them install it themselves without having to provide a lot of technical assistance.

Supra Corp.'s Supra Simple Internet 288e is a noble attempt that will work beautifully in some situations but far less than that in others. Designed for people without an existing modem or Internet service provider, the combination of a compact V.34 external modem (it's also available with an internal model) and the friendly, clear documentation and help-filled installation process hits that audience exactly.

The under-$200 product installs a Mosaic browser and, as part of the installation, gives you a chance to sign up with a provider that charges $9.95 per month for seven hours and $1.95 per hour after that. You can go to your own provider, although at that point the install passes from super easy to something more average and requires someone with technical savvy.

The modem screams — in both senses. It easily connects with another V.34 modem at high rates and, in the other sense, its speaker is loud enough (even at the lowest setting) to make dogs in adjacent counties howl in pain.

Although the product is designed to work under both Windows 3.x and Windows 95, the installer doesn't recognize long directory names. Nor does it try, during a Win95 install, to put the program in a directory under the Programs folder. Fortunately, the running program executes without problems in both environments.

If you're looking for a send-them-a-box solution for modemless Internet seekers, Supra Simple Internet is the easiest way yet to connect.

If they already have a modem or an Internet provider, the price is still reasonable but the simplicity isn't as remarkable.

Jeffrey Gordon Angus is a systems analyst with The Data Works Ltd., a Seattle consulting company for small businesses and nonprofit organizations. His Internet address is jeff_angus@infoworld.com.

THE BOTTOM LINE

Supra Simple Internet 288e

BUY — The Supra Simple Internet is a fast, easy way to get on-line. It saves nontechnical users the hassles of configuration, freeing up administrators.

Pros: One-box approach to the 'net; modem is fast enough to deal with the World Wide Web.

COLD — **Cons:** Not so easy to install if you've already got a service provider or you don't want to use the one it connects to automatically.

***Supra Corp.**, Vancouver, Wash.; (800) 727-8772, (360) 604-1400; World Wide Web: http://www.supra.com.*
***Price:** $189 to $210 street price.*
***Platform:** Windows 3.x, Windows 95.*

Copyrighted material

your machine will use the swap file less, your programs will appear to run faster, and you may be able to load and effectively run more programs at once.

How well they work

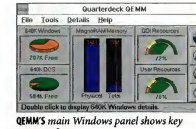
QEMM and Max have been refined as DOS memory managers almost beyond belief. Both are superb at that task, though QEMM often takes a more aggressive approach than Max.

This can give you more free DOS memory, but it also sometimes results in an unstable PC. Max was written to give you all the free memory it can and yet remain almost perfectly compatible with every PC configuration.

For example, in my PC, with network, sound card, and CD-ROM drivers loaded, I got 597KB free at the DOS prompt using PC DOS 7 and manual optimization. When I ran Max in its default manner, I got 622KB free. QEMM gave me 631KB (but at the cost of not running Windows). When I used QEMM without Stealth, Windows worked once more, but I got only 612KB free. In a DOS box in Windows for Workgroups 3.11, I got 568KB with PC DOS 7, 692KB with Max, and 600KB with QEMM. With some help, either program can get you just about all you could want from a DOS memory manager.

In DOS 6.0, Microsoft introduced a powerful new feature: multiple configuration start-up files — for example, CONFIG.SYS files with menus, and the capability to branch through your AUTOEXEC.BAT and any other batch files depending on which CONFIG.SYS menu option you chose at boot time.

This powerful addition to DOS presents some difficult challenges to memory optimization programs. Microsoft's own MemMaker essentially ignores these new possibilities.



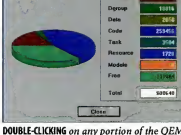
QEMM'S *main Windows panel shows key resource figures.*

QEMM and Max both attempt to deal with multiple configuration start-up files. As I felt with its earlier versions, I continue to be annoyed by the way QEMM's Optimize eliminates all the Include sections and in the process loses any indenting or spaces I have added for readability. Furthermore, it chokes on nested Include sections; I found that Max's Maximize gave me no problem in either of these respects.

Each product asks you which configuration option (or menu choice) you wish to have it optimize. QEMM defaults to the first one; Max's Maximize defaults to the active configuration. QEMM also allows you to create a new menu option based on one of the existing ones.

When you do that, however, you may find that the option you based it on no longer works the way you expect it to. In particular, QEMM doesn't rewrite AUTOEXEC.BAT in a way that keeps the original section independent of the new section.

I particularly liked how Max's setup program showed me which of my start-up files it was about to modify and what those modifications would be. In my case, the files



DOUBLE-CLICKING *on any portion of the QEMM window reveals additional details.*

it said it would change included CONFIG.SYS, AUTOEXEC.BAT, WIN.INI, and SYSTEM.INI. I later discovered that it also modified my START UP.GRP file, putting its Go Ahead and MaxMeter applets into the Startup Group so they would always load when Windows was started.

When you optimize your DOS memory, both QEMM and Max save the current configuration. Later on, you can return to any of the last several versions, or to the version in effect when you first installed the product. Max also provides an easy way to uninstall itself. I was sorry to find that feature missing in QEMM.

QEMM comes with a complete manual plus the famous Quarterdeck analysis tool, Manifest. Both have been updated to reflect all the new features and both are excellent.

Max comes with very little in the way of printed material. To make up for this, it comes with three other DOS programs and a good Windows help file.

The related DOS programs are called Max, ASQ, and QMT. The first two tell you about your system (much as Manifest does) and the last one tests your system memory in either a quick or a configurable full mode.

John M. Goodman has a doctorate in physics and is the author of Hard Disk Secrets *(IDG Books) and* Memory Management for All of Us *(Sams), and lead author of* DOS 6.0 Power Tools *(Random House). His Internet address is agoodman@earthlink.net.*

▸ **Windows 95 deinstallation software**

UnInstaller makes strong entry into Win95 market

By Joe Peschel

IN DECEMBER, I WROTE that Quarterdeck Corp.'s CleanSweep 95 was "the only Windows 95 deinstallation game in town." (See "CleanSweep the first to manage Win95 file deletions," Dec. 4, 1995, page 124.) Well, not anymore. MicroHelp Inc.'s UnInstaller 3.5 recently joined the fray. UnInstaller, which includes a version for Windows 3.1, provides most of the accessories that have become standard in program deinstallation utilities: modules that archive, move programs on your system, transport them to another system, clean up Windows, and look for duplicate and orphaned files.

The MicroHelp theory is to err on the side of safety and, consequently, UnInstaller's manipulation of its SmartLinks is more time-consuming than the tracking methods of other Win95 and Windows 3.1 utilities. The extra time that UnInstaller requires (you can configure the program to limit its SmartLinks update) may be acceptable to users who aren't in a hurry, but I found the waiting tedious. Deleting an 8MB program without a backup, for example, took about 8 minutes. WIN.INI entries, Start Menu items, folders, and subfolders, however, were easily cleared away.

Because a basic function of Windows 95 is the capability to deinstall 32-bit programs, a third-party deinstaller ought to perform as well as Win95, if not better. Unfortunately, UnInstaller's shortcomings may prompt you to check the Registry after deleting a program — and you'll need to use Regedit. UnInstaller, like CleanSweep, lacks its own dedicated Registry editor.

The Cleanup module, similar to a component in CleanSweep, will clean more than a dozen Windows file types, including clip art, fonts, and text files. Instead of including a redundant .DLL/.VBX and low-usage file finder, UnInstaller provides INI Clean and Disk Data.

The INI Clean module is one of UnInstaller's strongest features. It allows you to examine and edit any initialization file section by section, line by line. You can also search for associations. UnInstaller's reporting features, too, are stronger than CleanSweep's, as you can create detailed reports from several different modules as well as reports from INI Clean and Windows Cleanup.

Because UnInstaller missed Registry entries, left data files, and has a weaker Windows cleanup module, I continue to recommend CleanSweep 95 for Win95 and Vertisoft Systems Inc.'s Remove It for Windows 3.1. But I must admit I like to keep lots of deinstallers on hand.

Joe Peschel is a free-lance computer journalist. He can be reached at jpeschel@aol.com.

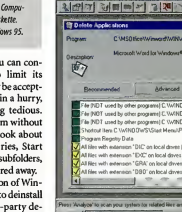
THE BOTTOM LINE

UnInstaller, Version 3.5 for Windows 95, and UnInstaller 3 for Windows 3.1

BOTTOM LINE

UnInstaller takes considerable time creating, updating, cataloging, and adjusting its SmartLinks, so program deletion, even without a backup, will take a long time.
Pros: Does its best to err on the safe side; strong INI editor.
Cons: Relatively slow; no Registry editor.

MicroHelp Inc., *Morietta, Ga.; (800) 922-3383, (770) 516-0899; fax: (770) 516-1099; E-mail: sales@microhelp.com; World Wide Web: http://www.microhelp.com.*
Price: *$39.95; upgrade is available free on the company's Web page or CompuServe forum or for $9.95 on diskette.*
Platform: *Windows 3.1, Windows 95.*



UNINSTALLER'S *Advanced tab displays the elements that the utility proposes to delete.*

Win95's neat freak

UnInstaller includes several applications for deinstalling and managing files

- **Delete Application:** Removes programs from Start Menu and Desktop; lets you browse for deletable files.
- **Archive Application:** Compresses and stores seldom-used programs.
- **Move Application:** Packages and moves applications to another folder or drive.
- **Transport Application:** Copies programs to other systems running UnInstaller.
- **Windows Cleanup:** Tracks and deletes files you no longer need.
- **Setup Monitor:** Tracks new program installations.
- **Duplicate File Finder:** Finds duplicates by name/date/size combinations, size filters.
- **Disk Data:** Finds folders and files; also gives a report of disk space used.
- **INI Clean:** Lets you examine and edit .INI files by section and line.
- **Orphan Finder:** Finds unattached program files and reattaches them to the Start Menu or Desktop.

DOWN TO THE WIRE · NICHOLAS PETRELEY

Cracking 'secure' data is all too easy, even for inexperienced hackers

IS YOUR DATA secure if you have your programs encrypt it? Probably not. Most of the encryption schemes used by commercial software are severely anemic.

You don't have to be a hacker to break encryption. There are free and commercial programs available that crack the encryption of Novell Inc.'s WordPerfect, Microsoft Corp.'s Word for Windows and Excel, and many other file formats. I've downloaded some of these off the World Wide Web, and boy, do they work. A free cracker program sliced through several encrypted Word for Windows 6.0 files like a shredder through a Whitewater file. It took one look and told me the passwords I used. It didn't even pretend to think about it.

Many of these files are open to attack because they use a simple XOR (exclusive OR) encryption algorithm. For the geek-challenged, an XOR operation compares two binary digits. If they are different (0 XOR 1), the result is 1. If they are the same (0 XOR 0 or 1 XOR 1), the combination gives you a 0. The latter behavior is what makes it an exclusive OR rather than a simple OR operation (1 OR 1 would result in 1).

The XOR operation is a handy way to make data look like something it isn't, with an easy way to get back to where you started. Suppose the letter *B* appears in your document. The hexadecimal number (base 16) for this ASCII code is 42. To encrypt it, you take a key value, usually derived from your password. Let's say the key value is hexadecimal 77. Now, XOR the two values. The result is hexadecimal 35. If you store this number, there's no easy way to tell the 35 represents *B* unless you know the key. But when your program wants to convert it back, it simply takes the key value 77 and XORs the encrypted number 35 again. The result is 42, or *B*.

Normally, the key value is more complex and spans several characters. Even so, if you can figure out the key pattern a program is using, you can decrypt any file protected by that pattern in minutes.

The problem is, you usually don't have to arm a hacker with more than a hexadecimal calculator and an ASCII chart to figure out most keys and passwords. (My apologies: Real hackers have the ASCII codes memorized and can perform hexadecimal calculations in their heads.)

If you doubt how easy it is, give your CompuServe CIS.INI file to some friendly hackers to examine. Your password is encrypted in this file using an XOR algorithm. A few minutes after the laughing stops, they'll read your password back to you.

These security weaknesses are pervasive. I'll use out-of-date examples to protect the integrity of current software. An old DOS version of the Informix database program encrypted user passwords using a simple XOR pattern. The key value was derived from the word "Informix." Whoa, I'd love the name of the think tank that came up with that gem.

Zero must tell

Sometimes you don't even have to guess the password. An old DataEase International Inc. database was easy to decrypt because it contained empty sections before it was encrypted — that is, it contained a range of consecutive zeros. An XOR of any key value and zero results in the key value (00 XOR 77 = 77). So wherever there was a range of consecutive zeros in the original file, you could get a clear picture of the key. Once you know the key, you have cracked the file.

These examples demonstrate by far the simplest methods of decryption. I'm not a full-fledged hacker, and I found them through casual observations I made back when I was a database reviewer. But even more complex encryption schemes won't stand up to a determined attack by your better-than-average hacker. For example, there are already some programs available that will analyze and extract the password for encrypted PKZip files, and that's a difficult encryption scheme to break.

Even the best encryption algorithm can be susceptible to the brute-force method of hacking. This is an effective but time-consuming way to find passwords. In this case, the hacker writes a program to try every combination of letters, numbers, and special characters as a password. The task gets more difficult as the password gets longer. A hacker can also write a simple program to try every word in an on-line dictionary. These are strong arguments for using long, complex passwords or pass phrases containing several unrelated words.

The best method of encryption I've seen so far is used by a program called PGP (Pretty Good Privacy). I believe this has yet to be hacked, so it stands to be one of the best hopes for document and E-mail security. I'll cover PGP in more detail in a couple of weeks.

Pizza on earth

Until then, I'd like to turn my attention to the issue that outweighs even file encryption: network security. And I'd appreciate your input. In view of all the budding controversy about weak Windows 95 security, *InfoWorld* will be hosting a network-cracking event. We'll put together a mix of network operating systems and clients and set them up to be as secure as we know how to make them. Then we'll invite a small number of accomplished hackers (those purely interested in the science of hacking, of course, and not criminals) to attack the system. We'll publish the results to help you with your buying decisions.

I'd like to hear from anyone who wants to participate. We'll supply the pizza, with coffee and cola to boot (or, if you prefer, to drink). Once we get an idea of who may be involved, we'll let you know the date. In the meantime, stay out of *InfoWorld*'s network, please.

But you're welcome to visit our Web site at http://www.infoworld.com and send me E-mail at nicholas_petreley@infoworld.com or CompuServe 71333,426.

LAST WORD

▸ **Pen-based personal digital assistant**

Newton has the write stuff with 2.0 operating system

By Ayse Sercan

FORGET THE TIRED JOKES about the Newton's handwriting recognition. Version 2.0 of Apple Computer Inc.'s Newton operating system adds Apple's own neural network technology for recognition of printed words. (Previously, the handwriting recognition was based on technology developed by a Russian company, ParaGraph.) Out of the box, it not only recognized my handwriting but had an error rate of about one character out of 200. Your mileage may vary, but I was impressed.

The Newton has really blossomed into a useful machine. When *InfoWorld* looked at the latest hardware (see First Look, Feb. 27, 1995, page 105), it suffered from those recognition difficulties and a short battery life. The batteries still run out fast, but extra battery packs, a charging station, and the Newton's capability to run on AA batteries alleviate the inconvenience.

More than just a portable calendar and address book, the Newton can connect to PCs and Macintoshes, and even the Internet. Some really solid applications are available in Newton versions, such as Intuit Inc.'s Quicken, Qualcomm Inc.'s Eudora, and Now Software Inc.'s Now Synchronize (which works with Now Up to Date). There are contact managers, expense trackers, E-mail programs, word processors, spreadsheets, and even a database builder. Available hardware includes modems, LAN adapters, a keyboard, and a global positioning system unit.

I really liked the way I could just jump in and get things done. If you can find your way around in a personal information manager (PIM), you can navigate the Newton. And the on-line help was generally useful. The only real pain was adding all my information. Moving files from a paper organizer to the Newton will take time and work. If you have your information stored on a PC or Mac, you're in luck. You may be able to convert the data and load it directly, depending on which PIM or PIMs you use on both your desktop and the Newton.

A pocketful of peripherals

- MessagePad charging station
- Power adapter
- Battery booster pack
- Rechargeable battery pack
- Printer pack
- Newton keyboard
- 2MB and 4MB flash storage cards

The Newton is more than just a digital replacement for a paper organizer. If you're not going to take advantage of available peripherals — at least a keyboard, charging station, and extra battery packs — the Newton is overpriced and overkill.

I had two main complaints with the Newton. First, editing with the pen is still a real hassle. The eraser function (activated by making a scratching-out motion), should let you scribble out anything. But it doesn't always realize you wanted to erase the word. I ended up with long lines of *Ms*, *Zs*, and *Vs* before I gave up and used the menus. It would be nice to have a pen with an erasing end, such as Wacom Technology Corp.'s Erasing UltraPen.

If you don't mind the editing pains and carrying a bulky device doesn't cramp your style, the Newton is probably the most friendly and easy-to-learn personal digital assistant around.

Also, carrying the Newton was just plain awkward. It just barely fit into my coat pocket, and whipping it out to write down a note to myself was a much bigger deal than pulling out my notebook and using a pencil. I'd also like to see a screen with orientation you can change, even if it meant looking at the bottom icons sideways.

THE BOTTOM LINE

Newton 2.0 with Newton MessagePad 120

BOTTOM LINE

COLD

If you want to carry your computer in your pocket, the Newton may be right for you. But if you want just a digital address book and calendar, it's overkill.

Pros: Compatibility with existing Macintosh and PC programs; wide range of accessories and software add functionality; vastly improved handwriting recognition with low error rate.

Cons: Still large and awkward; editing text with the pen is a real pain.

***Apple Computer Inc.**, Cupertino, Calif.; (800) 505-APPL; fax: (800) 462-4396; World Wide Web: http://www.apple.com.*
***Price:** $699 for Newton MessagePad 120; $109 for upgrade to new OS.*

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- ☐ 17 Data Processing/Management
- ☐ 18 Corporate Management
- ☐ 19 Website Management
- ☐ 20 Publishing
- ☐ 21 Telecommunications Management
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- ☐ 23 Corporate Operations/ Site Management

2. Your Business or Profession is:
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- ☐ 25 Consulting
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- ☐ 31 Insurance
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- ☐ 35 Publishing
- ☐ 36 Other _____

3. Your Title is:
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DISTRIBUTED THINKING · STEWART ALSOP

Until I find the right PDA, I intend to keep a cellular phone in my shirt pocket

I HAD WHAT FELT LIKE a religious experience last week. And it had nothing to do with computers. I got a new portable cellular telephone. First, my disclosures: This is a computer publication, so I shouldn't be writing about a telephone. I am a computer guy, so I don't know anything about telephones. Indeed, I have the sneaking suspicion that this cellular phone thing has been going along merrily and everybody was just keeping it a secret from me.

But I haven't been able to think about anything else, even the World Wide Web, since I got this new phone. It started in early December when I attended a secret meeting of 17 chief executives of computer companies. (None of the important companies was there and it was only secret so we could limit attendance and charge more money.) I noticed during the meeting that nearly half the executives were using portable phones they kept in their pockets. (My phone stayed in my briefcase in my room. The battery life was short and the recharger was too bulky. In other words, it was a pain.)

Ever the intrepid reporter, I started asking those who had a phone what brand and model it was. All but one turned out to be a Motorola MicroTac Elite. And every one of the people who owned one of these said the same thing: They weren't sure what made it different, but they just used it and didn't have to think about it.

That is the ultimate accolade when it comes to technology products. They just used it!

I spent the next two weeks doing a little bit of research and discovered that these are relatively new Motorola phones and are expensive, more than $600 for the basic configuration. (They are not the newest; Motorola introduced another phone the week before last that is half the size and designed to slip into your shirt pocket, but I had just bought the one I have. You just can't keep up with this phone business — as soon as you buy one product, it's obsolete! Nothing like the computer industry.)

So I got down on my knees and debased myself before our facilities manager, Steven Brown, who happens to be responsible for our telecommunications and buys our portable phones. Steven, the saint he is, bought my line and delivered a phone to me just a week ago. Here's the deal:

Even with a "fat" battery, the phone is practically weightless. And it's small enough that I've taken to keeping it in my shirt pocket along with the 3-by-5-inch note cards that still haven't been replaced by a personal digital assistant. (See Distributed Thinking, Oct. 23, 1995, page 122.)

You can get a lithium ion battery for the phone. It doesn't last any longer than the nickel-metal-hydride battery, but you don't have to manage it. That means you don't have to worry about how much you discharged it before you can recharge it. And the battery lasts forever: 30 hours on standby. That means you can safely leave the phone on to receive calls all day long without worrying that it will expire on you. And it has enough talk time — more than 3 hours — that most users can safely use it without worrying about using up the battery. Then you just have to remember to park the phone in its charger overnight. Even if you forget, it lasts long enough on its battery that you can probably use it for two days without recharging.

Right there, you've got the whole reason so many of those executives had bought the phone: size, weight, and battery profile. But it doesn't stop there. (I should be on television late at night: Yes, folks, this phone slices! It dices! It splices!)

My phone has an answering machine in it! Portable phones have introduced a new social problem: What do you do when you are interacting with a real human being and the phone rings? I've had people stop in midconversation while visiting me in my office to answer their portable phone. I'm too polite to say anything, but can you believe that? My phone — which you can set to ring by vibrating so that no one else knows it's ringing — answers the call itself and takes a message.

It even has a feature where callers can punch in their phone numbers. Then you can return the call simply by pressing the SND button. (The buttons are big enough now that I don't understand why they don't put the *E* back in SEND.)

With this phone, there's almost no reason to use any other telephone. The home phone. The office phone. The car phone. I can use one telephone and one telephone number that's always with me and available (even while it's in the charger overnight). It handles socially awkward situations gracefully. I can use it with my computer, so my computer has access to the telephone system where normally it doesn't. Imagine if everybody had such a personal telephone: It might change some of the dynamics of everyday life.

Even more significant for us geeks, think what would happen if computers, particularly portable ones (even PDAs), were this easy to use fruitfully.

Some of us might even have to get a new job. I still haven't found a copy of *MicroTac Elite World!*

Write to Stewart Alsop at stewart_alsop@infoworld.com or join his forum on InfoWorld Electric at http://www.infoworld.com.

NOTES FROM THE FIELD · ROBERT X. CRINGELY

Novell's bought a wedding dress for WordPerfect, but the party's still up in the air

SEVERAL MONTHS AGO, Pammy asked me to be her date at the wedding of an old college roommate of hers. The shindig was taking place in early January in Quito, Ecuador, of all places, she said. Quite a haul, but what the hey, it's not every day you get to spend 10 hours in an airplane.

Of course, agreeing to go to Quito and actually going to Quito are two entirely different beasts. When it came time to go south last week, I refused to give up my La-Z-Boy for a cramped coach-class seat, causing Pammy to become a Charlie's Angel and threaten to pepper-spray me if I didn't get it in gear.

Later, on the plane, I sulked over a tray of airplane food while Pammy practiced her Spanish on me.

"Quieres el mas macho: Bill Gates o Larry Ellison?" she asked me.

"Ellison es mas macho," I replied confidently, then started making a mental list of foods to avoid in Quito.

Looking for a Perfect fit

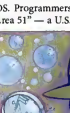
Novell is making a list, too. Of potential WordPerfect buyers, that is. Reliable sources inside Novell's legal department tell me the short list of WordPerfect suitors includes Adobe, Computer Associates, Claris, Corel, and a consortium of Japanese companies. I'd put myself on the list, but my Discover card is maxed out.

Meanwhile, only two developers, one marketing person, and one tester remain on the WordPerfect Macintosh team. Apparently the four of them sit around playing Doom all day, if they come in to the office at all. Some former WordPerfect Macolytes have apparently been talking to Apple about forming a new company that will make OpenDoc components, including a new version of WordPerfect sliced up into OpenDoc morsels.

Crack an Easter egg

Speaking of Apple, those wacky kids in Cupertino decided to add a cute little Easter egg to the Newton 2.0 OS. Programmers tossed in a reference to "Area 51" — a U.S. military installation reported to be a warehouse for rusting UFOs — in Newton's Time Zones application.

When Apple sent its Newtons out for beta testing, one user, a CIA cryptographer, went nuts because Area 51 was listed at the correct longitude and latitude. Terrified by the prospect of thousands of Newton users showing up at its UFO party, the CIA got tough with Apple and eventually the company pulled the reference. (A Cringe mug to anyone who can tell me how to recover the Area 51 Easter egg.)



"Don't sync, Bobbiesimo," Pammy assured me. "We'll be safe in Quito soon."

Not so safe

But how safe is Windows NT? Microsoft claims that it's a C2-certified system. True, but only as a stand-alone operating system — not when it's connected to a network. If you're a stickler for C2 security, run the test on your NT server or workstation. You'll get a message that says "network services must be removed or disabled." Once you've shut down the network and bought a new pair of sneakers, you have a C2 system.

BY THE time the plane landed in Quito, I was delicious from sleep deprivation. Pammy left me next to the hotel swimming pool with an umbrella drink in my hand and an iguana in my lap while she went dancing.

"Don't way up for me, Roberto," she said as a twentysomething bellhop whisked her away.

Don't you run off without sending me a tip. Contact me at (415) 312-0555; fax: (415) 286-2775; or cringe@infoworld.com.

Copyrighted material

To launch Windows® 95, *they*

used 4 networks,

85 magazines,

100 radio stations

and, *ahem,*

one server.

TO POWER THE ON-LINE LAUNCH OF WINDOWS® 95, MICROSOFT CHOSE THE DIGITAL PRIORIS™ HX 590DP SERVER.

Failure was not an option on August 24. Microsoft's official launch date for Windows® 95 marked the biggest new product introduction in industry history, not to mention one of the great all-out media blitzes. On this day, a minor glitch would have made headlines. So when all eyes turned to Microsoft—Microsoft turned to Digital.

For the on-line launch of Windows® 95, Microsoft plugged in the Digital Prioris Internet Server—ten of them, in fact. A decade of Microsoft/Digital teamwork was behind the decision. So was the simple realization that, for a job that meant handling almost two million hits the first day, the Prioris HX 590DP was simply the best server around. After all, its fault tolerant features do include drive arrays, ECC memory, redundant cooling systems and power supplies. Put simply, Microsoft chose Digital for the same reasons you should. Reliability. Power. And no slip-ups.

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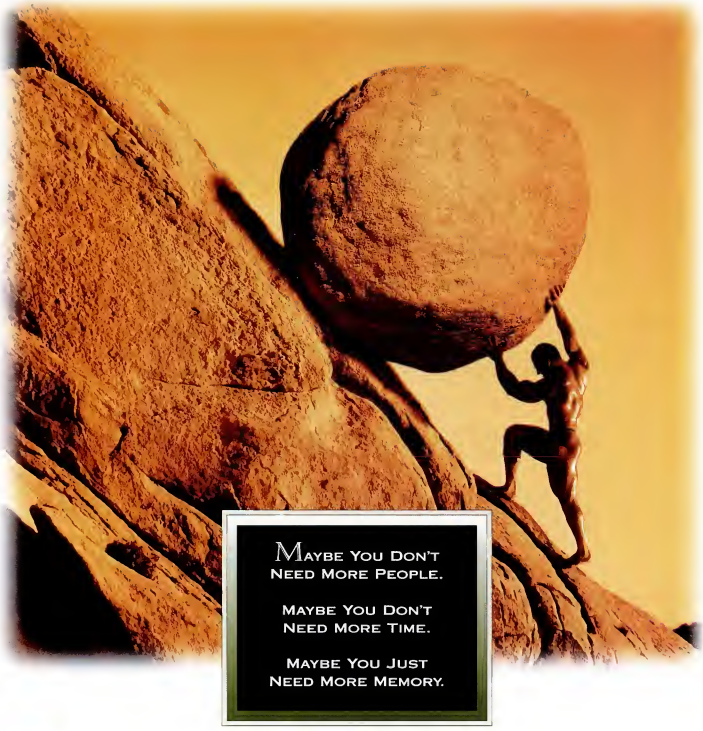
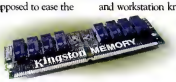


These days, you can sum up the human condition like this: too much work, not enough time. Computers, of course, are supposed to ease the burden. But now, with all the new memory-hungry software out there, many computer systems aren't up to the task. Fortunately, there's a simple solution: add more memory. Recently, an independent study* revealed that by adding just four megabytes of memory, the average manager became 26% more productive. The average number cruncher improved by 12%. So, why Kingston memory? Because Kingston makes memory for almost every PC, server, printer, and workstation known to man. Our memory is designed to meet, or even exceed, the specifications set by leading computer manufacturers. We test every cell on every chip on every module. (On a 16 megabyte module, that's 128 million cells.) If you ever need help, our service and support will quickly shoulder the load. Is it any wonder Fortune 1000 companies use Kingston memory more than any other brand?



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*Zeff-Davis study, PC Computing, November 1994. Kingston Technology Corporation, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699.

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InfoWorld Breaks Ground in the Pacific Northwest.

Herb Myers, president of Boxlight Corp., Sloan Myers, vice president of Boxlight Corp., with Roger Frey, InfoWorld sales associate.

In November 1995, *InfoWorld* opened its newest sales office in Bellevue,

Stephen Moylen, publisher of InfoWorld, and Serge Timacheff, marketing communications director for ATI.

Washington – making *InfoWorld* the first IS newsweekly to open shop in the Pacific Northwest. Here are a few photos of the Grand Opening.

Jim Martin, president and CEO of InfoWorld Publishing Company says, "Our Bellevue location is not just an additional sales office. It is a demonstration of our commitment to customer service. Our high-tech advertising clients in the Pacific Northwest want responsive, accurate service. *InfoWorld*'s Bellevue office will be there to bring it to them better than ever before."

"*InfoWorld* is the critical advertising vehicle for reaching IS managers who buy enterprise products for their companies," said Phil Branon, *InfoWorld* vice president and associate publisher/west. "With the rapidly growing software community and enterprise product producers in Washington and British Columbia, Bellevue was a natural choice for us. We will be able to more effectively and efficiently reach more manufacturers of enterprise products, who in turn will be able to reach their customer base of IS managers."

Joel Petersen, Greendisk vice president and Steve Fricke, InfoWorld regional sales manager.

"In this high-tech age, having local representation to provide better face-to-face support is a great thing," said Lisa Berlin, marcom manager of Asymetrix Corp. in Bellevue.

"Having a local office means that I'll be able to get information or materials I needed in a timely manner," added Serge Timacheff, marketing communications director for Allied Telesyn International in Bothell, Washington.

Steve Fricke, *InfoWorld* regional manager, will cover the Pacific Northwest territory from the Bellevue office. Fricke brings more than 11 years of high-tech sales and research experience to the territory. Before joining *InfoWorld* in 1993, Fricke worked in the PC, NeXT, and Macintosh markets.

How to contact InfoWorld's newest office

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Coming Soon in InfoWorld...

Issue	February 12	February 19	February 26	March 4	March 11
Ad Close	February 2	February 9	February 15	February 23	March 1
Product Comparison	CD-Rom Servers	PCX Servers	Remote LAN Access Software	Presentation Graphics Software	Multimedia Software
Enterprise Computing	*Remote Access Strategies*	*Intranets*	*Compaq*	*Groupware in Client/Server Applications*	*LAN/WAN Integration*
Demographic Editions	Enterprise Networking, Enterprise Applications Development, UNIX	Enterprise Networking, Enterprise Applications Development, UNIX, Enterprise Multimedia	Enterprise Networking, Enterprise Applications Development, UNIX, RBOC	Enterprise Networking, Enterprise Applications Development, UNIX, Enterprise Multimedia	Enterprise Networking, Enterprise Applications Development, UNIX
Demographic Edition Ad Close	January 26	February 2	February 9	February 15	February 23
Bonus Distribution at Trade Shows		Email & Internet Expo-San Jose, CA Mobile Computing Insights-Phoenix, AZ	NetCom-Ft. Lauderdale, FL	intermediaWORLD-San Francisco, CA	

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Lion's Roar Lite

Agency Showcase

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Ellen Freeman
President

Lion's Roar recently interviewed Ellen Freeman in her Wellesley, MA office.

Founded in May 1986, Freeman Associates currently handles $75 million in billings. And that's without a creative department and without consumer accounts. Freeman has 19 employees handling *only media, only for technology accounts.*

"When you look at pure tech, that's big," understates Ellen Freeman, President and Founder. "We've been growing aggressively," with a client base that includes industry movers like America Online, Bay Networks, PowerSoft and Computermania.

"I had been working as a VP of operations, account service and media for The Strayton Corporation, which became Gray, Strayton. After six years there, I wanted to tackle my next challenge. Why not offer high-level strategic media management directly to tech companies? I felt they deserved a higher level of thinking and focus than they were generally getting. I started with just one employee. It was 3 or 4 years before we hired anyone else.

"If you take a look at our growth in comparison with the health of the market financially, we started picking up steam when ROI pressure on Marcom increased, and media decisions were more carefully scrutinized. Clients who turned to their full-service agencies for answers were getting inadequate responses, from inexperienced people – people who really wanted to be buying media for Fruit Loops and Ho-Ho's. Technology clients began to realize they had an alternative in us that was quite good.

Staff of Freeman Associates.

"When I started back in the mid '70s, there were maybe 10 technology magazines to consider. Today, there are more than 300 publications dedicated to buyers of high technology products! Our clients are faced with extremely difficult choices in creating media strategies that answer both corporate and business line objectives. Freeman Associates has a headstart in understanding the market, the companies, and the people involved with making successful media strategies happen. There is so much more to evaluating opportunities for our clients than just the traditional tools at hand.

Just part of Freeman Associate's historic ad collection.

"We have a context. A sense of perspective. We tend to 'get it' a lot faster, about a new section or a new book. We see trends happening. Our viewpoint is uncompromised because it has to be from a media point of view. We're not held back in the beginning by creative demands which may not take media strategy into consideration at all."

Freeman notes that tech buys are increasingly including consumer, business, local market, radio, cable, outdoor – everything, in short – although spending tends to remain at least 75% print, about 10% broadcast and 15% "other" – electronic, CD delivery, CDzines and so on.

"There is a whole new class of media forming. Media language is all very different, and changing all the time. '200,000 hits?' what does that mean? Electronic hyperlinks are a whole new type of delivery that has no rules and regulations. There's such discrepancy in what you pay; whether or not you want it, or whether it has real value. It isn't like looking at the latest Intelliquest and running the numbers. You have to know what you're doing.

"Our world is getting bigger geographically too. A lot of clients now want an international focus," she adds. "We can no longer use the term 'rest of the world;' it's global."

A Marblehead, Massachusetts native and Simmons College graduate, Freeman "always seemed to come back to Boston." She lives with her husband, Attorney Mark Freeman; 8-year-old daughter, Elizabeth; and a dog named Wanda, west of Boston.

On left, Sarah Fay, Vice President, Director of Client Services
On right, Peggy Hittner, Vice President, Media Director

INFO WORLD
January 29, 1996
INSIDE...
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The courage of our convictions

special report

Windows 95 Special Report.

Windows 95 took off with a bang when it hit the shelves last August and the echoes are still reverberating throughout the industry. In a follow-up to our August 21, 1995 Windows 95 Special Report, *InfoWorld* will take a look at what issues IS departments are still dealing with in bringing the promise of Windows 95 to their corporations. We'll report on where the industry stands now and just how deeply Windows 95 has penetrated corporate IS sites.

As the Enterprise Product Newsweekly, *InfoWorld* is the primary reference source for 310,000 IS managers who buy client/server-based enterprise products in volume. The topic of Windows 95 is no exception because they'll be looking to *InfoWorld* for answers to the myriad of questions they are facing when deciding to deploy the OS throughout their corporations.

Hardware - IS managers who implement Windows 95 know that their companies' systems will probably have to be upgraded to accommodate the increased memory and processor requirements of the new OS. One analyst in our August 21 issue even predicted that Windows 95 would redefine the corporate desktop, but has that been the case? Are major upgrades taking place at corporate sites? Or are companies still holding off on adopting Windows 95? And how many companies are avoiding hardware upgrades by skipping Windows 95 altogether and migrating directly to Windows NT?

Software - A wave of Windows 95 software programs has drenched the market since August. But are software developers creating new 32-bit applications, or are they merely repackaging 16-bit titles? And which programs have been sanctioned by Microsoft and earned the Windows 95 logo by conforming to Windows 95's look and feel, support of long file names, OLE 2.0, Windows NT 3.5 and Messaging API? We'll update readers on the availability and promise of 32-bit applications that run under Windows 95.

Plug and Play - In our August 21 Windows 95 Special Report, analysts predicted that it would take six months before Plug and Play, and the instant compatibility it offered, was widely adopted by hardware vendors. We'll report on the accuracy of those predictions. Will there be universal support for the feature, and when will it arrive? Are firms with older equipment being left out in the cold with no Plug and Play support? How much of a difference is it actually making in reducing corporations' tech support costs?

Application Development - Corporations that do their own in-house development need to upgrade their development tools to create applications for Windows 95 clients. We'll look at how they – and the tool vendors – are managing this new development need.

IS managers who have already upgraded and those who are still debating are looking to *InfoWorld* for products and information to help them with their Windows 95 decisions. Don't miss your chance to get your products noticed by these potential buyers.

To reserve your space, contact your *InfoWorld* representative or call 1-800-227-8365 today.

InfoWorld's
March 18, 1996
Windows 95
Special Report
Closes
February 28, 1996

Fractional Ad Close:
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